

# Marine Review

SHIP OPERATION

SHIPBUILDING

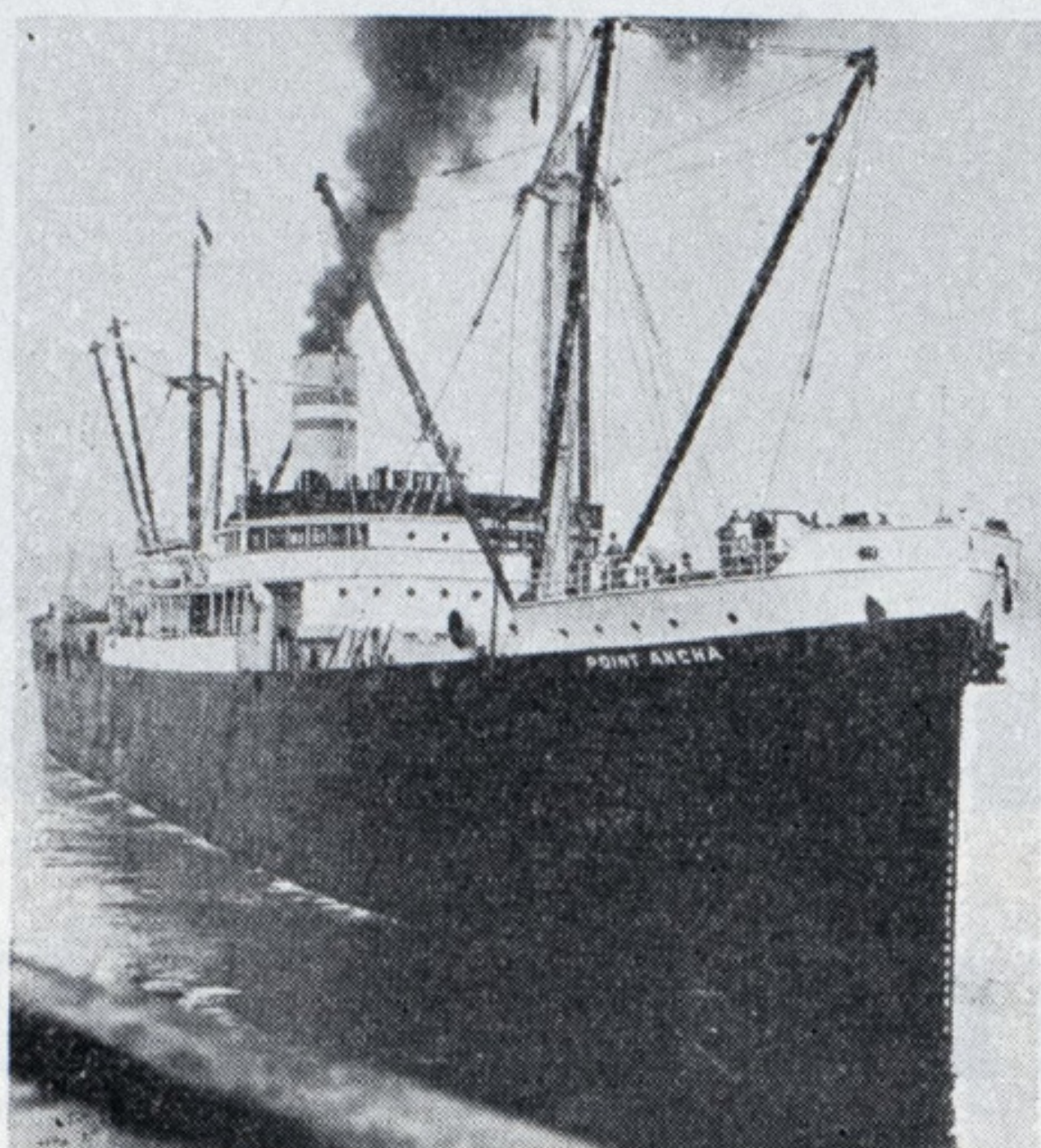
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## CONTENTS

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	Page
Editorial .....	7
Shipping and Shipbuilding, Marked Revival .....	9
European Shipping and Shipbuilding Improved.....	10
By F. C. Bowen	
Panama Canal, Substantial Increase in Traffic.....	12
Port of Boston, Its Commerce and Facilities.....	16
By Frank S. Davis	
Lengthen Tanker Maine for Lake Service .....	21
Maritime Law—Late Decisions .....	24
By Harry Bowne Skillman	
Ports—Marine Business Statistics Condensed .....	25
New Construction, Ordered and Contemplated.....	26
Hydro Electric Steering Gears .....	29
World Shipbuilding Increase over 40 Per Cent.....	30
Welded Steel Diesel Engine Bed on Train .....	31
Stevedoring and Dock Management Progress .....	32
Supervising Cargo Handling and Stowage	
By "The Mate"	
Useful Hints on Cargo Handling .....	35
Up and Down the Great Lakes .....	37
Personal Sketches of Marine Men .....	39
Alton B. Sharp, Eastern Steamship Lines Inc.	
By Ben K. Price	



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# Marine Review

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Volume 64

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## Protect American Shipping in Foreign Trade

**P**ROTECTION for American shipping engaged in foreign trade must be provided to meet foreign competition. The administration is thoroughly aware of this fact as indicated by the shipping subsidy program submitted to congress by Secretary Roper. Informed public opinion also recognizes this need. Naturally there are many suggestions as to the form and extent of such protection.

In this connection we quote here in part a communication received from Otus O. Robinson of Highland Park, Mich.:

"I have read with interest the article, Shipping Subsidy Program Proposed, which appeared in the April issue of MARINE REVIEW.

"The first American colonists were ship-minded. They came in ships and kept in touch with their former homes by means of ships. This interest continued until about the year 1860. After the Civil war the people turned their thoughts to westward expansion and took an indifferent attitude toward a merchant marine because they did not care about foreign trade.

"After the World war, our westward expansion had reached the Pacific, the Panama canal had been opened, and we had an enormous ship tonnage due to war activities. We had begun to look across the Pacific and our trade with Japan and China was increasing rapidly. A few Americans are again becoming ship-minded and we realize that we need a merchant marine to help foster our growing foreign commerce.

"The great natural wealth of our country which was exploited by the people soon raised our standard of living above that of other countries. To protect our industries from cheap foreign goods, protective tariffs were enacted. These tariffs do not, however, protect American flag ships engaged in foreign trade from the

low cost of building and operating foreign flag ships. The government did nothing to assist them until the World war taught us the need of an adequate merchant marine and then help was extended in the form of mail contracts. There are, however, better ways of assisting our merchant marine.

"The American merchant marine must be subsidized but we should educate our citizens as to the needs and purpose of the subsidy. A good definition of a subsidy is, a grant from a government to assist an enterprise considered beneficial to the public. . . . Everybody knows we need protective tariffs but if subsidy is mentioned they become skeptical and tell you they don't like the idea. Therefore, in granting aid to a merchant marine, we should link it with our protective tariffs. It is my opinion this can be accomplished by:—

1. Abandoning gradually the present method of mail contracts.

2. Enlarging upon the powers of the present tariff commission to enable it to assist foreign trade ships by protective differentials. There would be a differential to cover the cost of the ship which would be paid over a 20-year period. This differential would be the difference in cost of a foreign built and an American built ship. One-twentieth to be paid each year, and any time spent by the ship in domestic commerce to be deducted.

Another differential would cover the difference in operating cost. This differential should be graduated according to speed of the ship. The amount of money paid each operator would be determined by the ton-mile of freight and mail and by the passenger-mile.

3. Money for the protective differentials would be appropriated from general treasury funds.

4. These differentials would be paid to all American owned ships, built in American yards, and flying the American flag. There would be no contracts and any operator qualifying, as above stated, would receive the differentials."



# Hold Final Public Hearing on General Shipping Code

**A**PPROVAL of the master shipping code has again been delayed because of the desire of the recovery administration to give the fullest consideration to the views of all groups concerned. A final public hearing on the proposed master shipping code will be held in Washington on April 26. J. B. Weaver, deputy administrator for the shipping section, will conduct the hearing. All complaints and criticisms will be heard at that time.

Despite the great care with which the code has been prepared, including numerous conferences with representatives of all groups, resulting in repeated revisions of the original draft, there is still evident a considerable body of opinion opposed to one or another, or several of its provisions.

For instance, vessel officers represented by the United Licensed Officers association object to its minimum wage clause, holding that it calls for a scale below the minimum wages now paid by some operators. Shippers are vehement in their opposition to the clause on freight rates, especially the stabilizing feature, claiming that it will have the tendency to destroy all flexibility in rates and that consequently it will work a hardship on shippers and manufacturers.

## Objection to Regulation

Another group, represented by the National Industrial Traffic league, objects particularly to section seven on the ground that there is no public demand for further regulation of water lines than now exists, that it cannot possibly help but increase transportation charges and that it will divert traffic away from water lines. Also, that it places the man who pays the freight bill at the complete mercy of the vessel owner.

However, it is the hope of the recovery administration that all conflicting views can be reconciled at the public hearing or shortly thereafter, so that the code may be signed.

The proposed general code of fair competition for the shipping industry on which the final public hearing is to be held has been proposed by members of the shipping industry who are truly representative of the industry. It covers the operations of all elements of waterborne commerce of the United States under all flags, including service vessels, such as towboats, lighters, barges, ferries, and all similar vessels, and contracting stevedores and such other mari-

time operations as may be determined by the administrator, irrespective of ownership. The proposed code is, therefore, applicable to common carriers, contract carriers and private carriers.

It is in the nature of a master code, which sets up the organization structure for divisional and subdivisional codes which will be developed.

The proposed code, when finally approved, will make operative immediately the labor and unfair trade practice provisions. Provisions referring to the establishment of minimum charges are only outlined in the proposed code and minimum tariff rates will not be determined until such time as the divisional and subdivisional codes are approved and signed. Methods of code government, code authority election, assessments on the industry, and so forth, are provided for the divisions and subdivisions. The general unfair practice provisions which are applicable to the industry as a whole will be further amplified in divisional and subdivisional codes.

It specifically provides the method of voting which will obtain in the divisional or subdivisional codes covering trades in which there are foreign members of the industry. The proposed method does not give control to predominant American or foreign interests, but provides for an equality of representation. In case of failure to agree, the final decision is vested in the administrator.

It proves that the divisional and subdivisional codes may set up minimum tariff rates for the services rendered by the members of the industry in the divisions and subdivisions, which rates will be reviewed by the shipping board bureau or by the interstate commerce commission, or both.

In the foreign trade habitual and drastic rate cutting below rates established by conferences, duly approved by the shipping board bureau, causes both American and foreign flag lines operating under conference agreements severe losses in revenue.

Only a control of the minimum tariff rates, together with stabilization of labor costs, will cure these destructive conditions.

In transportation, the public interest requires that common carrier service be regularly maintained and open to all shippers on equal terms. The establishment of minimum charges for service will not eliminate the contract or private carriers, but will control this class of transporta-

tion insofar as it encroaches upon the legitimate sphere of the common carrier. There is much bulk traffic, such as coal, iron ore, phosphate rock, crude oil and so forth, which should not be seriously disturbed, but it is definitely in the public's interest to prevent the contract or private carriers reducing charges to levels which threaten the common carrier service.

The proposed code outlines a workable, feasible method of making exceptions to minimum rates in cases of emergency. The shipper will have all the protection offered under existing laws for the review by the shipping board bureau and or interstate commerce commission if rates seem unreasonable by following the procedure now in operation.

The proposed code contemplates the appointment of one administrative representative in the ports of New York, New Orleans, Chicago and San Francisco, and such other ports as may later become necessary. These administrative representatives will sit on all code authorities which focus at the port in question, and will develop uniformity of policy, expedite action and assist in the settlement of questions which will arise.

Divisional labor boards and a national labor board will be established with equal representation of employers and employees for the conciliation of labor disputes. Harmonious and effective cooperation between them should result.

## What the Code Provides

The proposed code is designed to provide the following:

1. Stability of minimum wages, maximum hours and other working conditions.
2. Establishment of minimum charges for services rendered at reasonable levels.
3. Flexibility in the reduction of minimum tariff rates in cases of emergency.
4. Sufficient local autonomy in the divisions and subdivisions to enable the industry to efficiently and effectively provide for self-regulation.
5. Cooperation between the administration and the shipping board bureau of the department of commerce, and the interstate commerce commission.
6. Machinery for the adjustment of complaints arising under the operations of the proposed general code and the divisional and subdivisional codes supplemental thereto.
7. Machinery within the industry for the conciliation of labor disputes, first by divisional boards and then by a national board.
8. Protection against monopolies or monopolistic practices or the elimination or oppression of small enterprises.



# Revival in Shipping and Shipbuilding

## A Marked Upturn is Now Evident

**A** DISTINCTLY optimistic outlook for American shipping is reflected in a maritime survey by H. Gerrish Smith, president of the National Council of American Shipbuilders.

His report was issued in connection with the annual meeting of the council, held at the Whitehall club, New York on April 19. Mr. Smith's announcement follows:

"There has been a distinct revival in shipping, both foreign and domestic, during the past few months. This is an encouraging omen for those engaged in shipbuilding, ship-repairing and ship operation.

"The value of unfinished ship construction has materially increased within the past year. Business on hand aggregated but \$29,000,000 as of Jan. 1, 1933. The beginning of 1934 found this figure increased to \$147,000,000. The bulk of the business, of course, is accounted for by contracts for 21 naval vessels awarded to seven private yards last August. Contracts involving the construction of fourteen vessels for the coast guard and one for the light-house service have also been awarded.

### Number of Workers Doubled

"The number of workers in ship construction has practically doubled during the past year. Employment in 20 representative yards reached a low level of 10,411 last July. On Sept. 30 this number had increased to 14,950 and by the end of the year stood at 17,000.

"Shiprepair yards also report a substantial improvement during recent months. This applies to yards on the East and West coasts, in the Gulf and on the Great Lakes. The actual man hours per week in fifteen representative yards increased from 425,000 in November to 596,000 in February and to 757,000 in March. While these results are due partially to a normal seasonal increase, they are held to indicate also a considerable uptrend in the shiprepairing industry, especially as it applies to seagoing vessels.

"The brighter outlook for shipping has already been reflected in a decrease in idle tonnage. The tonnage of laid-up vessels decreased some 3,000,000 gross tons during 1933. In the United States, during this period, more than 700,000 tons were taken from lay-up. These vessels were replaced about evenly in the foreign and coastwise trades.

"Panama canal records\* also presage an improvement in shipping, especially in the intercoastal trade. The number of transits in 1933 was 13 per cent greater than in 1932, while cargo tonnage increased 16.9 per cent. Transits for March 1934 were the most impressive in years.

"The improved outlook for vessels in foreign trade is shown by the volume of exports and imports for the first quarter of 1934 as compared with the corresponding period last year. Exports for this year, by value, were 55 per cent greater, while imports had increased 47 per cent.

### Merchant Vessels Completed

"The year 1933 marked the completion of the first group of forty-two vessels constructed under provisions of the merchant marine act of 1928. Merchant shipbuilding in the United States as a result last June declined to four-tenths of one per cent of the world total, the lowest percentage on record. The United States stood in ninth place among the 10 maritime nations at the end of the year, although our percentage had increased 7.7 per cent of the world total. Merchant vessel contracts let during 1933 included two cargo vessels built for A. H. Bull Steamship Co.; two large and three small tankers built for the Standard Vacuum Transportation Co.; a small passenger and cargo vessel constructed for the Northland Transportation Co.; and a vessel of special type for the Seaboard Shipping Corp.

"While merchant shipbuilding constitutes a very small volume of tonnage it is gratifying, none the less, to note the constructive suggestions for the maintenance and upbuilding of the merchant marine recently submitted to congress by the secretary of commerce and which are now awaiting action by congress. In working out the necessary legislation to effectuate these recommendations the most economical shipbuilding program would be one that provides for an approximately uniform volume of annual merchant vessel construction, because it is upon such a uniform program that the shipyards can be maintained in efficient operation.

"The shipbuilding and shiprepairing industry has been operating under a code of fair competition and trade practice approved by the

\*See article on Panama Canal traffic in this issue page 12.

President on July 26, 1933, which established a much shorter work week than that prevailing in nearly all other industries. This provision, undoubtedly, has been a severe handicap to the industry and has in some instances actually decreased employment by slowing down work on vessels for which contracts had recently been let.

"While there has been some slight increase in employment under the code on contracts that were already underway when the code went into effect, this is not true as regards the new naval contracts entered into in August. This is due to the slowing down of the work on these 21 vessels in their early stages of progress, so that at the present time there are fewer men employed on these contracts than would have been the case had longer hours been worked during the past six months.

"While employment on shiprepairing has been limited to 40 hours per week, with an average of 36 over a six months period, the average employment per week has been far below 36 because of the intermittent and emergency character of shiprepair work. A greater number of hours during a work week is essential in this department of the shipbuilding industry if employes therein are to secure an average of 36 hours over any extended period.

### Handicapped by Lesser Hours

"In the performance of work on naval vessels, private shipyards are in direct competition for skilled employes with the government navy yards in which the hours of employment are 40 a week. Effective as of April 7, the 32 hours of employment on naval vessels in private shipyards have been increased to 36 hours but notwithstanding these changes in their hours of employment the private shipyards continue to be operated under a handicap of four hours as compared with the 40 hours of employment now prevailing in government navy yards.

"The Vinson bill which recently passed congress calls for the construction of one aircraft carrier, 99,200 tons of destroyers and 35,530 tons of submarines to replace over-age vessels. An annual program for the construction of these vessels, a substantial part of which will undoubtedly go to private shipyards, will do much toward maintaining the activity and efficiency of our private shipyards."



# European Shipping and Shipbuilding

## Upward Trend Favored by State Aid

By Frank C. Bowen

**T**HE most interesting event which has happened in the European shipping and shipbuilding world for a long time past is the recommencement of work on the giant Cunard liner which is still known as "NO. 534" without any hint being given as to what name she will eventually bear. She has been held up for two years and three months, and her construction has become a national matter for the prestige of the British merchant service, in addition to a very urgent affair for the unemployed on Clydeside and all over the country. Actual work was resumed immediately after the Easter holidays and the scene in the shipbuilding area as the first 600 men were led into the yard by a bagpipe band has not been equaled since the launch of the *LUSITANIA*.

### Much Work Before Launching

There is still a lot of work to be done on the ship, for although the sides and bow have been built up the stern is still uncompleted, the decks are not yet plated and there is an immense amount to be done in the engine room. Whether opportunity will be taken to change the lines as designed and tested in the tanks, especially round the stern, is an open question for although it has been frequently rumored there is no official announcement on the subject and it would appear that the main purpose of both owner and builder at the present time is to hurry the ship forward as quickly as possible. According to present plans she will take the water in the late autumn.

The bill for government aid in her construction, although there was never the least chance of it being thrown out in parliament, did not go through without a certain amount of opposition. A number of private members on both sides of the house were rather critical as to the sound finance of the arrangements made, and the Labor members took the opportunity to press forward their main principle of the nationalization of shipping. But, since the principal reason of the government giving help at all has been to increase employment, the result was a somewhat half-hearted resolution, heavily defeated, that the house

A quarterly review of European shipping. The first article appeared in the February issue. Similar articles will appear in the August and November issues.

took exception to any proposal to vote public money for the promotion of private shipping interests without any guarantee as to its repayment and without conditions for securing public control over its disbursement, a share in any profits which might accrue, or the ultimate conversion of the shipping industry into a national undertaking.

It was one of the definite conditions laid down by the government before it would consider any financial assistance in the completion of the new ship that the Cunard and White Star companies should put an end to their competition and present a united front to foreign rivals. There were considerable difficulties in arranging this, but eventually a definite plan was put forward for the formation of Cunard-White Star Ltd., a concern that is to be and to remain entirely British, which is to take over, free of all mortgages and charges, certain assets of the two existing companies. Sixty-two per cent of the initial nominal capital is to be allotted to the Cunard Co. and 38 per cent to the Oceanic Steam Navigation, the board being composed of six Cunard nominees and four White Star. The debenture stock is to consist of specific mortgages on 20 ships, backed by a floating charge, and the debenture holders of both concerns have agreed to this with a huge majority.

### I. M. M. Offers Objection

Trouble has arisen through the action of the International Mercantile Marine in applying to the British courts for an injunction against the proposed merger, maintaining that the capital of the Oceanic company is pledged to the International Mercantile Marine Co. as security for the unpaid instalments of the Kysant purchase of the White Star line. How this law case will proceed is, of course, beyond any prophesy but there is every suggestion that it will be a long and expensive business. In the meantime the chancellor of the exchequer has announced in the house of commons that the White Star line has received a definite legal opinion that it is quite within its rights in joining the merger, but that, should the courts decide otherwise, it is quite feasible to obtain precisely the same result by other means to which there is no legal objection, means which have not been defined but which he stated would not entail any change

in the bill before parliament.

It is rather curious that while such efforts are being made to combine the Cunard and White Star line the fusion between the Hamburg-American and the North German Lloyd, which was effected with such a flourish of trumpets as putting an end to all Germany's shipping difficulties, shows distinct signs of coming to an end. Whether those who are in favor of the combined operations can avert this remains to be seen, but Hamburg and Bremen shipping has been at loggerheads from time immemorial and it is not so easy to end such a tradition with one stroke of the pen.

### Subsidy for British Shipping

It is generally believed that the help given to the Cunard-White Star line is only a beginning of a ship subsidy policy for Britain, and that quite early in the new financial year, which begins with April, there will be a definite proposal for the state to help British shipping. What form this help will take cannot yet be ascertained, for the government has very wisely left it to the shipping industry to make its own suggestions, and the British shipping industry has never agreed on such a subject yet. All sorts of plans have been put forward by different branches and strenuously opposed by others and although the various bodies concerned with the control of the industry have been doing their utmost to reach agreement it is more than doubtful whether they have succeeded.

The one definite point is that British shipping as a whole is normally against the principle of subsidies and maintains that they do more harm than good, but it was just the same with the protective tariff; the ideal was there and was undeniable but for Britain to be the one exception in the world was suicidal. At the present time it is very much the same with regard to subsidies. While practically every other industry in the country shows signs of rapid revival shipping is still in the depths of depression and a number of firms are near the end of their tether. There is general agreement that some measure of state aid, definitely to last only as long as the present circumstances, is inevitable.

Various schemes have been put forward by individuals and parties who are more or less authorized to do so, and probably the actual plan to be



## Trend of Trade and Shipping in British Isles

	January	February	Two months ended Feb. 28	
			1934	1933
Total entrances of cargo ships into British ports:				
Number of vessels.....	3,541	3,284	6,825	6,385
Tons.....	4,813,274	4,251,531	9,064,805	8,434,478
Tonnage from Atlantic coast of North America.....	735,365 (15.3%)	623,926 (14.7%)	1,359,291 (15.1%)	1,357,573 (16.1%)
Total clearances from British ports:				
Number of vessels.....	4,026	3,741	7,767	7,643
Tons.....	4,493,346	4,142,113	8,635,459	8,480,639
Tonnage going to Atlantic coast of North America.....	627,429 (14%)	585,297 (14.2%)	1,212,726 (14.2%)	1,227,042 (14.6%)
Total value of goods:				
Exported.....	£35,682,464	£35,270,021	£70,952,411	£65,769,925
Imported.....	£64,671,822	£57,353,979	£121,959,782	£102,885,892
Exports of coal:				
Tons.....	3,010,741	3,359,187	6,369,928	6,142,296
Value.....	£2,439,011	£2,665,568	£5,104,579	£4,935,563
Tonnage shipped for use of steamers.....	1,206,842	1,104,325	2,311,167	2,210,636

discussed by parliament will be a compromise of all the most promising. There is one plan, however, which is certain to meet with the utmost opposition from the economists and thoughtful shipping men, and that is that a subsidy of so much per ton per annum should be paid on the tramp ships laid up as well as those in commission. As a considerable proportion of these ships, the greater part of them in fact, are obsolete for competitive work under modern conditions this suggestion will only tend to perpetuate the surplus of carrying tonnage and shipping obviously cannot get on to an even keel again before it is more or less wiped out.

At the present time only 14.7 of the total tonnage owned in Great Britain and Ireland is under five years of age, and it has to meet the competition of Norwegian shipping which is 28.2 per cent under that age, Dutch which is 20.4 per cent and other Continental countries which make a much better showing than the British. This percentage must be brought up to something approximating the Continental levels and every effort made to encourage the scrapping of surplus ships. Happily the demand for scrap steel is still very brisk and the price of tonnage for this purpose is going up steadily. Comparatively recently it reached the ludicrously low level of 6 shillings per ton gross; at the beginning of this year it was about £1 a ton and now it is over 23 shillings and rising steadily.

There is no doubt that the tramp of the future, if she is to retain any of her business in face of the heavy competition of the cargo liner, will have to be a much more economical ship than the great majority of those afloat at the present time, especially the British tramp which has to compete with such low personnel and safety costs in the ships of the Mediterranean countries and Japan.

### Prize for Revolutionary Design

In Italy, where the economists and shipping men are seriously concerned about the average age of their shipping, the authorities have offered a large cash prize for any inventor who will present a revolutionary design for a tramp ship. It is the intention to replace the present Italian tramping fleet, which is of considerable age and mostly bought from foreign countries when more than half worn out, by the most up to date units built with the assistance of the state. But in the mean time the British tramp shipping industry seems to be obtaining the same result by private enterprise.

Within recent years the steam engineers, urged to the greatest efforts by the striking success of the diesel, have made great progress in running economy, but as a general rule this has been accompanied by considerable elaboration and increased cost, which is the last thing that a tramp can consider. The attention of the experts has therefore been turned to improving the hull form in order to reduce

resistance and obtain speed with less power, and in this Sir Joseph Isherwood's "arcform" ships undoubtedly take the lead.

The first two "arcform" vessels have now passed their trials and gone on service and they have both been strikingly successful. Not only has the cost of construction been reasonable, and considerable weight saved in the hull without loss of strength, but they have been strikingly economical in coal and, what is perhaps most important in a tramp steamer, they have been very "sea kindly." The ARCWEAR on her maiden voyage rode out the worst of weather with much less reduction of speed than would have been necessary in the case of a loaded tramp of ordinary form, keeping her engines running at 57 revolutions which gave her 6½ knots instead of reducing them to about 20 as the ordinary ship would have done.

Having laid down three of these "arcform" ships on speculation, and therefore put himself in a position to give potential buyers the fullest information without having to consult any owner, Sir Joseph is now talking about building nine additional vessels of this type.

In the mean time a large fleet of expensive 16-knot cargo motor liners is under construction for the New Zealand and Australian trade, encouraged under the Ottawa agreement. Various companies are concerned in this fleet, the cost of which is ex-

(Continued on Page 40)

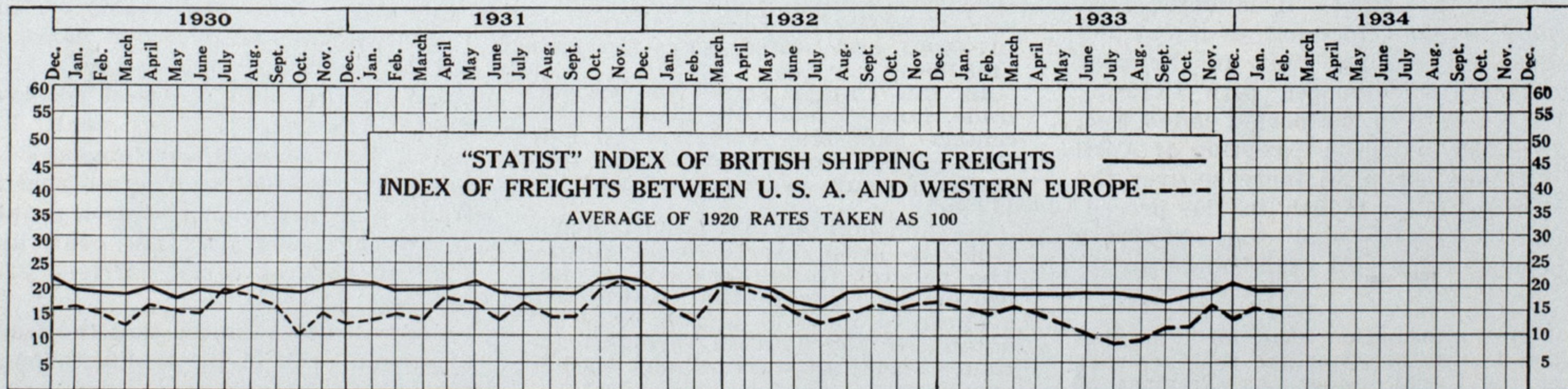
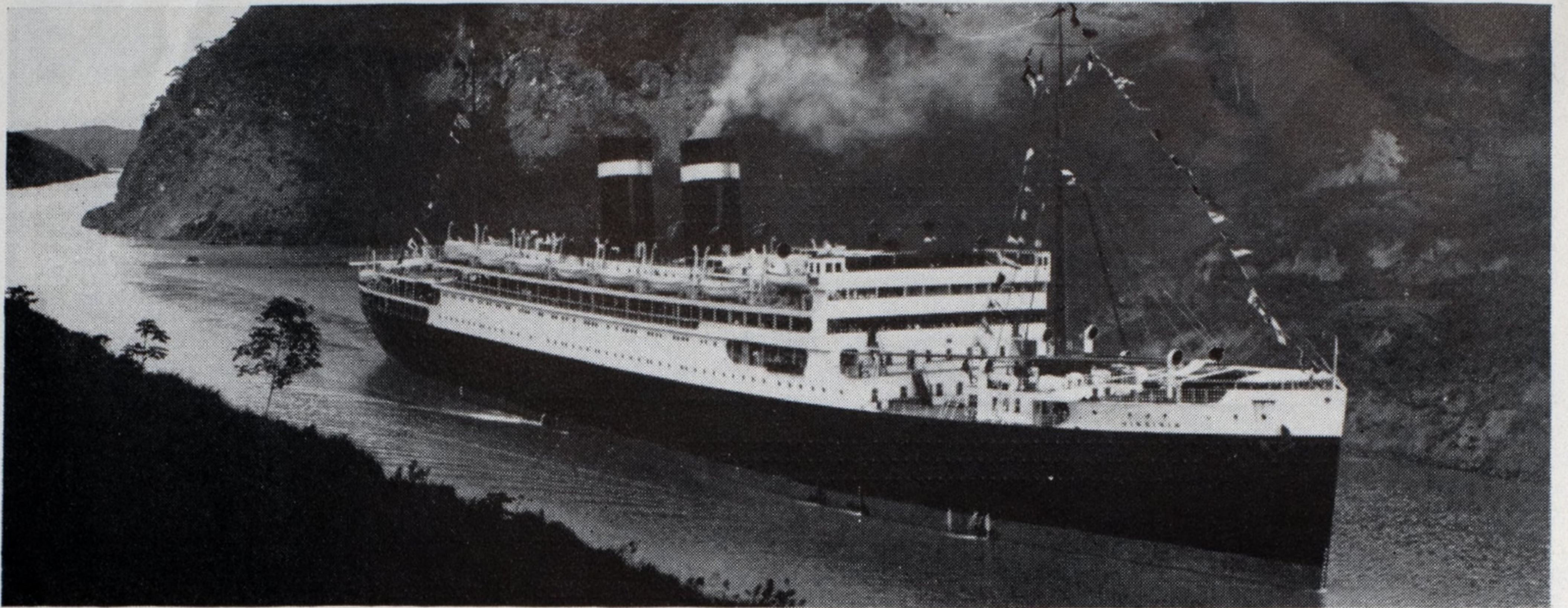


Diagram showing fluctuation of ocean freight rates for four years and two months





*Panama Pacific liner Virginia in Gaillard Cut, Panama Canal*

# PANAMA CANAL,

## Substantial Increase in Traffic is Noted

**N**ET tonnage (Panama canal measurement) of commercial traffic through the Panama canal in the 12-month period ended Feb. 28, 1934, was 16.6 per cent greater than traffic in the 12 months ended Feb. 28, 1933. The following table shows the total traffic, by months, for the 12-month period ended Feb. 28, 1934, in comparison with the same months for the year ended Feb. 28, 1933:

	Tonnage 1933-1934	Tonnage 1932-1933
March .....	1,989,044	1,864,986
April .....	1,839,597	1,863,692
May .....	1,883,249	1,956,958
June .....	1,901,117	1,743,150
July .....	2,051,128	1,676,492
August .....	2,159,995	1,658,112
Total .....	11,824,130	10,763,300
September .....	2,096,538	1,868,391
October .....	2,416,200	1,988,133
November .....	2,395,359	2,035,796
December .....	2,617,656	2,080,069
January .....	2,582,131	2,069,218
February .....	2,462,760	1,832,658
Total .....	14,570,644	11,874,265
Grand Total .....	26,394,774	22,637,565

From the above it is noted that there was an increase of 3,757,209 tons, or 16.6 per cent, in the year 1933-34 as compared with 1932-33. Each month in the period ended Feb. 28, 1934, with the exception of April and May, made an increase over the corresponding month in the preceding 12 months, and each six-month period in the two years made an in-

The information contained in this article was prepared for the Governor of the Canal, under the direction of Seymour Paul, chief, Bureau of Statistics, Panama Canal.

crease over the preceding six-month period. The daily average net tonnage in February 1934 was the highest of any month of the two periods under discussion. The last six months

### Summary

#### Canal Traffic Increase

**I**N THE year ending Feb. 28, 1934, total net tonnage increased 16.6 per cent over the preceding 12-month period. The greater part of the increase was in the period from July, 1933, to February, 1934, inclusive; the last six months showed an increase of 25 per cent over the first six months.

Tonnage increased over all major routes except Europe-United States-Canada. This fell off 752,000 tons, about 13 per cent, but was not so much a general decrease as the absence of a movement of wheat.

On the five other major routes, in the order of actual net tonnage involved, the greatest increases were: United States intercoastal (2,370,000 tons gain), Europe-South America (663,000), United States-South America (562,000), Europe-Australasia (371,000), and United States-Far East (166,000).

In the United States intercoastal trade, tankers made the greatest percentage gain but general cargo carriers gained more in actual net tons (1,256,000 gain as compared with 1,114,000).

We find nothing that is particularly indicative with respect to the future. The general feeling of business improvement suggests that traffic will keep up to about its present level but nothing in the data on various trade routes seems to warrant any specific prophecies.

of the 12-month period ended Feb. 28, 1934, made an increase in the daily average of 25.3 per cent over the preceding six months, and 22.7 per cent over the corresponding six months of the 12-month period ended Feb. 28, 1933.

#### Traffic by Trade Routes

In the table on page 14 the traffic (net tonnage, Panama canal measurement) is segregated by the six major trade routes, representing 87.4 per cent of the traffic in 1933-34; and lumping the balance under "miscellaneous." There are shown the total tonnage operating over these routes for the two periods, the per cent of the total tonnage each route comprised, and the percentage gain which the 12-month period ended Feb. 28, 1934, made over the corresponding period in 1932-33:

From the table on traffic by trade routes (Page 14) it is noted that the most marked increases were, in order:

Between the east coast of the United States and the west coast of South America, 75.7 per cent; Between Europe and the west coast of South America, 37.1 per cent; Between Europe and Australasia, 33.6 per cent; United States intercoastal trade, 32.8 per cent; in which tanker traffic increased 59.9 per cent, and that of general cargo carriers 23.4 per cent.

It is also to be noted that the trade of second rank in the traffic through the canal, that between Europe and the west coast of the United States



and Canada, showed a decrease of 752,437 net tons, or 12.9 per cent. This was the only major trade showing a decrease.

United States Intercoastal Trade

The total net tonnage, Panama canal measurement, engaged in the United States intercoastal trade in the 12-month period ended Feb. 28, 1934, amounted to 9,597,479 tons, as compared with 7,227,368 tons in the 1932-33 period, a gain of 2,370,111 tons, or 32.8 per cent. Tanker traffic in this trade figured prominently in this increase, having made a gain of 1,114,365 tons, or 59.9 per cent. Tanker tonnage in the intercoastal trade comprised 11.3 per cent of the total tonnage through the canal in the past 12 months, compared with 8.2 per cent in the preceding 12-month period.

General cargo traffic in the intercoastal trade, comprising 25.1 per cent of the total traffic through the canal in the past 12 months, made a gain of 23.4 per cent. The greater part of the gain in the tanker traffic has been made in the last six months, more than doubling the tonnage of the first six months of the 1933-34 period, and almost doubling that of the corresponding six months of the 1932-33 period.

The peak months in intercoastal tanker traffic in the past two years occurred in November and January last when a total of 385,354 tons and 379,525 tons (Panama canal net), respectively, were passed through. February showed a slight drop from these highs. In the general cargo traffic in the United States intercoastal trade, four months—July,

Intercoastal Traffic

INCREASE in tonnage engaged in the United States intercoastal trade in the past 12 months (up to March 1) over the preceding 12 months was due principally to the heavy cargo movement from the west coast. The largest portion of this increase was in tanker traffic, the west to east movement of mineral oils increasing from 1,688,277 tons to 2,888,021 tons, a gain of 1,199,744 tons, or 71.1 per cent. Mineral oils made up over 45 per cent of the east-bound intercoastal cargo movement in the past 12 months. The movement of all other cargo eastbound, i.e., eliminating mineral oils, made an increase of 752,982 tons, or 27.6 per cent.

Some of the more important commodities and the gains made in tons of cargo and in per cent were: Lumber, 261,711 tons or 26.2 per cent; wheat, 113,831 tons or 76-fold; flour, 111,739 tons or 126.9 per cent; canned goods, 56,717 tons or 10.6 per cent; and sugar, 66,893 tons or 31.7 per cent.

The total cargo movement from the Pacific to the Atlantic in the United States intercoastal trade in the past 12 months was 6,366,039 tons, as against 4,413,313 tons in the previous 12 months, a gain of 1,952,726 tons, or 44.2 per cent.

Cargo movement from the Atlantic to the Pacific in the United States intercoastal trade in the past 12 months totaled 1,958,735 tons, in comparison with 1,613,630 tons in the previous 12 months, a gain of 345,105 tons, or 21.4 per cent. This gain was due to an increase in shipments of general and manufactured goods.

August, September and October of 1933—were particularly outstanding due to the heavy cargo movement, particularly lumber, from the west coast during these months. After October there was a gradual downward trend of traffic with general cargo in the intercoastal trade, which was offset by gains in other trades. The daily average of the last six months of the 1933-34 period of general cargo traffic in the intercoastal trade registered a gain of 4.67 per cent, over the first six months, and an increase of 22.3 per cent over the corresponding six months in 1932-33.

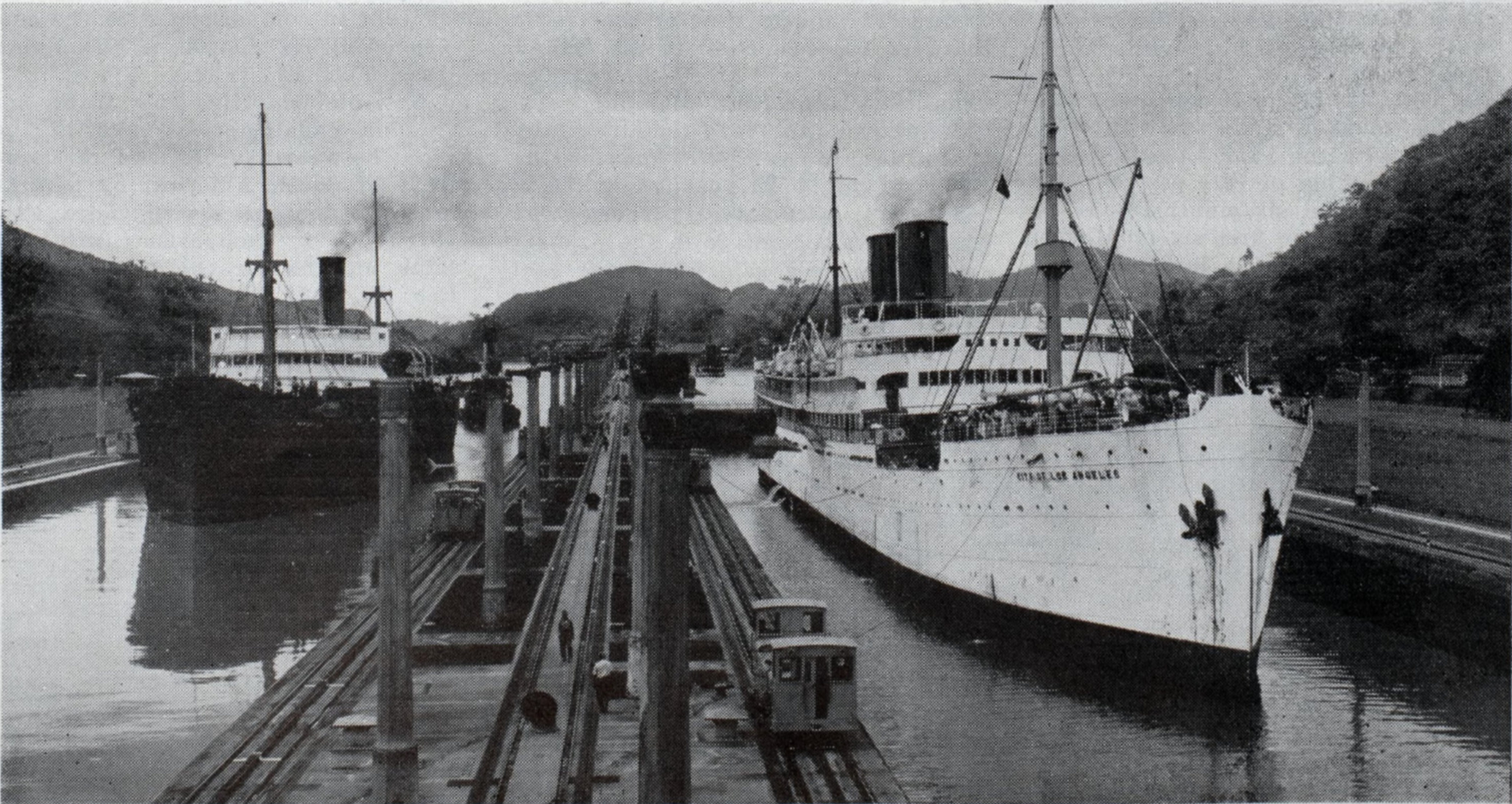
Tables showing the traffic in the United States intercoastal trade by months for the two 12-month periods, in Panama canal net tonnage, follow:

United States Intercoastal Tankers

	Tonnage 1933-1934	Tonnage 1932-1933
March .....	157,219	83,823
April .....	138,801	127,897
May .....	158,409	130,647
June .....	191,422	164,745
July .....	162,445	141,514
August .....	171,322	154,602
Total .....	979,618	803,228
September .....	232,407	137,084
October .....	360,337	149,819
November .....	385,354	168,184
December .....	317,845	183,131
January .....	379,525	217,021
February .....	319,720	201,974
Total .....	1,995,188	1,057,213
Grand Total .....	2,974,806	1,860,441

United States Intercoastal General Cargo

March .....	486,656	472,639
April .....	472,117	429,448
May .....	514,863	460,670
June .....	543,904	402,502
July .....	621,294	454,090
August .....	625,919	401,358
Total .....	3,264,753	2,620,707



S. S. New Britain and S. S. City of Los Angeles in Pedro Miguel Locks, Panama Canal



## Traffic Through Panama Canal by Trade Routes

Trade Route	Tonnage	Per Cent	Tonnage	Per Cent	% Increase
United States intercoastal:	1933-1934		1932-1933		
Tankers .....	2,974,806	11.3	1,860,441	8.2	59.9
General Cargo .....	6,622,673	25.1	5,366,927	23.7	23.4
Total intercoastal .....	9,597,479	36.4	7,227,368	31.9	32.8
Between Europe and the west coast United States/Canada: .....	5,092,749	19.3	5,845,186	25.8	12.9*
Between east coast United States and Far East: .....	3,144,776	11.9	2,978,564	13.2	5.6
Between Europe and west coast South America .....	2,447,117	9.3	1,784,496	7.9	37.1
Between Europe and Australasia: .....	1,474,384	5.6	1,103,824	4.9	33.6
Between east coast United States and west coast South America: .....	1,303,564	4.9	741,717	3.3	75.7
Miscellaneous: .....	3,334,705	12.6	2,956,410	13.0	12.8
<b>Total: .....</b>	<b>26,394,774</b>	<b>100.0</b>	<b>22,637,565</b>	<b>100.0</b>	<b>16.6</b>

Note: Net tonnage, Panama canal measurement, used in this table. (\*) Indicates decrease.

September .....	635,033	439,934
October .....	651,479	474,459
November .....	563,892	487,479
December .....	555,936	468,504
January .....	474,423	453,066
February .....	477,157	422,778
<b>Total .....</b>	<b>3,357,920</b>	<b>2,746,220</b>
<b>Grand total .....</b>	<b>6,622,673</b>	<b>5,366,927</b>

### United States Intercoastal

<b>Total</b>		
March .....	643,875	556,462
April .....	610,918	557,345
May .....	673,272	591,317
June .....	735,326	567,247
July .....	783,739	595,604
August .....	797,241	555,960
<b>Total .....</b>	<b>4,244,371</b>	<b>3,423,935</b>
September .....	867,440	577,018
October .....	1,011,816	624,278
November .....	949,246	655,663
December .....	873,781	651,635
January .....	853,948	670,087
February .....	796,877	624,752
<b>Total .....</b>	<b>5,353,108</b>	<b>3,803,433</b>
<b>Grand Total .....</b>	<b>9,597,479</b>	<b>7,227,368</b>

### Europe, West Coast U. S., Canada

The second ranking trade via the Panama canal is between Europe and west coast of the United States and Canada and in the 12-month period ended Feb. 28, 1934, comprised almost one-fifth of the total traffic. Tonnage over this route, the only one of the six major trades under discussion to show a decrease in comparison with the 1932-33 period, fell off to the extent of 12.9 per cent. Although the last six months made an increase over the first six months of the 1933-34 period, a large decrease occurred in comparison with the corresponding six months in 1932-33. This was due to the abnormally heavy movement of wheat from Canada in the autumn of 1932, immediately following Great Britain's trade pact with its colonies. The wheat crop movement in the fall of 1933 was comparatively small, owing to smaller crops. Traffic in this trade has made a considerable increase in the past three months, however, and closely approximated the tonnage passing through in December, January and February of the 1932-33 period.

A table showing the traffic in the trade between Europe and the west coast of the United States and Canada, by month, for the two 12-month periods, in Panama canal net tonnage follows:

	<b>Tonnage</b>	<b>Tonnage</b>
	<b>1933-1934</b>	<b>1932-1933</b>
March .....	447,892	432,913
April .....	416,199	462,797
May .....	340,753	417,051
June .....	341,261	382,967
July .....	369,036	380,676
August .....	388,735	378,717
<b>Total .....</b>	<b>2,303,876</b>	<b>2,455,121</b>
September .....	320,300	488,979
October .....	425,680	625,688
November .....	460,506	672,263
December .....	524,213	534,039
January .....	559,853	571,878
February .....	498,321	497,218
<b>Total .....</b>	<b>2,788,873</b>	<b>3,390,065</b>
<b>Grand total .....</b>	<b>5,092,749</b>	<b>5,845,186</b>

### East Coast U. S., Far East

The third largest trade operating via the Panama canal in the past 12 months was that between the Atlantic coast of the United States and the Far East. It comprised 11.9 per cent of the total net tonnage (Panama canal measurement) in comparison with 13.2 per cent in the preceding 12 months. Of the percentage gains made in five of the major trades in 1933-34 as compared with the preceding 12 months that of the traffic between the east coast of the United States and the Far East was the smallest, being but 5.6 per cent. Traffic over this trade remained fairly uniform in the past 24-months, the peak having been reached in January 1934, with 334,012 tons. The daily average tonnage in the past six months made a gain of 3.0 per cent over the preceding six months, and an increase of 8.6 per cent in comparison with the corresponding six months in the preceding 12-month period.

A table showing the traffic, in Panama canal net tonnage, in the trade between the east coast of the United States and the Far East, by months, for the 12-month period ended Feb. 28, 1934, in comparison with the same months for the period ended February 28, 1933, follows:

	<b>Tonnage</b>	<b>Tonnage</b>
	<b>1933-1934</b>	<b>1932-1933</b>
March .....	267,105	280,836
April .....	231,611	262,437
May .....	285,056	286,685
June .....	275,343	220,840
July .....	259,901	234,374
August .....	242,869	235,468
<b>Total .....</b>	<b>1,561,885</b>	<b>1,520,640</b>

September .....	192,647	217,391
October .....	263,249	229,515
November .....	218,595	242,549
December .....	303,067	275,213
January .....	334,012	269,694
February .....	271,321	223,562

<b>Total .....</b>	<b>1,582,891</b>	<b>1,457,924</b>
<b>Grand Total .....</b>	<b>3,144,776</b>	<b>2,978,564</b>

### Europe, West Coast South America

Traffic between Europe and the west coast of South America was the fourth largest trade through the Panama canal in the past 12 months. It accounted for 2,447,117 net tons, Panama canal measurement, or 9.3 per cent of the total tonnage through the canal in the period ended Feb. 28, 1934. This compares with 1,784,496 net tons, or 7.9 per cent, of the total tonnage for the period ended Feb. 28, 1933. The increase in this trade in the past 12 months aggregated 662,621 tons, which was 37.1 per cent greater than the net tonnage passing through in the period ended Feb. 28, 1933. The increased movement on this route has been due largely to the revival of Chilean nitrate shipments which had been practically dormant during the larger part of the previous 12-month period. Shipments of this commodity have been particularly heavy during the past six months. Shipments of mineral oils from Peru have been a factor also in the increased tonnage between Europe and the west coast of South America.

In February 1934 the total tonnage, Panama canal net, operating in this trade was 263,055, the daily average of which (9395) was the highest of any month of the two 12-month periods under discussion. The daily average net tonnage for the past six months in this trade made an increase of 42.2 per cent in comparison with the preceding six months, and 58.7 per cent in comparison with the corresponding six months in the period ended Feb. 28, 1933.

A table showing the traffic in Panama canal net tonnage in the trade between Europe and the west coast of South America, by months for the 12-month period ended Feb. 28, 1934, in comparison with the same months for the period ended Feb. 28, 1933, follows:

### Europe, West Coast S. A.

	<b>Tonnage</b>	<b>Tonnage</b>
	<b>1933-1934</b>	<b>1932-1933</b>
March .....	205,216	161,931
April .....	153,666	135,859
May .....	131,586	182,327
June .....	141,285	123,602
July .....	204,171	152,160
August .....	184,361	129,549
<b>Total .....</b>	<b>1,020,285</b>	<b>885,428</b>
September .....	204,137	148,387
October .....	251,849	172,157
November .....	194,487	133,556
December .....	273,953	157,118
January .....	239,351	151,788
February .....	263,055	136,062
<b>Total .....</b>	<b>1,426,832</b>	<b>889,068</b>
<b>Grand Total .....</b>	<b>2,447,117</b>	<b>1,784,496</b>

### Europe and Australasia

Traffic between Europe and Australasia was the fifth largest trade through the Panama canal during the past 12 months. It accounted for



5.6 per cent of the total net tonnage, Panama canal measurement, transiting during that period, in comparison with 4.9 per cent of the total in the 12-month period ended Feb. 28, 1933. The increase over this route in the past 12 months aggregated 370,560 net tons, or 33.6 per cent more than the tonnage passed through in the preceding 12 months. The gain is attributed to the rate of exchange becoming more favorable to British owners who operate the greater amount of tonnage in this trade. It will be remembered that when Great Britain abandoned the gold standard, vessels plying between Europe and New Zealand sought routes other than by the Panama canal (Cape of Good Hope and Cape Horn), due to the high tolls rates when paying gold dollars with depreciated pounds. With the abandonment of the gold standard by the United States last March, however, the exchange again became substantially the same (or slightly more favorable to the operators) as when both nations were on the gold basis, resulting in the return to the Panama canal of much of this traffic. Traffic in February 1934 over this route was the highest of any month in the past two years. The daily average net tonnage for the past six months in this trade made an increase of 30.0 per cent over the preceding six months, and an increase of 79.2 per cent in comparison with the corresponding period in the 12-month period ended Feb. 28, 1933.

A table showing the net tonnage through the Panama canal in the trade between Europe and Australasia, by months, for the 12-month period ended Feb. 28, 1934, in comparison with the same months in the period ended Feb. 28, 1933, follows:

Europe and Australasia

	Tonnage 1933-1934	Tonnage 1932-1933
March .....	106,062	128,745
April .....	141,197	104,743
May .....	124,289	92,987
June .....	101,474	107,023
July .....	73,002	89,780
August .....	101,087	58,400
Total .....	647,111	581,678

September .....	95,813	95,434
October .....	93,809	57,562
November .....	139,821	75,269
December .....	155,454	80,741
January .....	139,558	111,512
February .....	202,816	101,628
Total .....	827,273	522,146
Grand Total .....	1,474,384	1,103,824

East Coast U. S., West Coast S. A.

Traffic between east coast of United States and west coast of South America was the sixth trade in point of net tonnage through the Panama canal in the past 12 months. It accounted for 4.9 per cent of the total net tonnage, Panama canal net, in comparison with 3.3 per cent of the total in the preceding 12 months. The increase in this trade in the past 12 months aggregated 561,847 net tons, or 75.7 per cent more than the tonnage passing through in the 12-month period ended Feb. 28, 1933. The increased tonnage over this route has been due to a resumption of iron ore and nitrate shipments during the past 12 months, as well as a return to the trade by the Grace Line of several of its passenger and cargo vessels which had been withdrawn in 1932 owing to poor trade conditions. The daily average net tonnage in this trade during the past month of February (4616) was the second highest of any month in the last two years, being exceeded only by that of September 1933, which aggregated 4979 tons, the daily average tonnage for the last six months of the 12-month period ended Feb. 28, 1934, was 4344, exceeding that of the preceding six months by 54.5 per cent and that of the corresponding six months of the 12-month period ended Feb. 28, 1933, by 164.6 per cent.

A table showing the traffic in Panama canal net tonnage in the trade between the east coast of the United States and the west coast of South America, by months for the 12-month period ended Feb. 28, 1934, in comparison with the same months for the period ended Feb. 28, 1933, follows:

	Tonnage 1933-1934	Tonnage 1932-1933
March .....	69,206	66,317

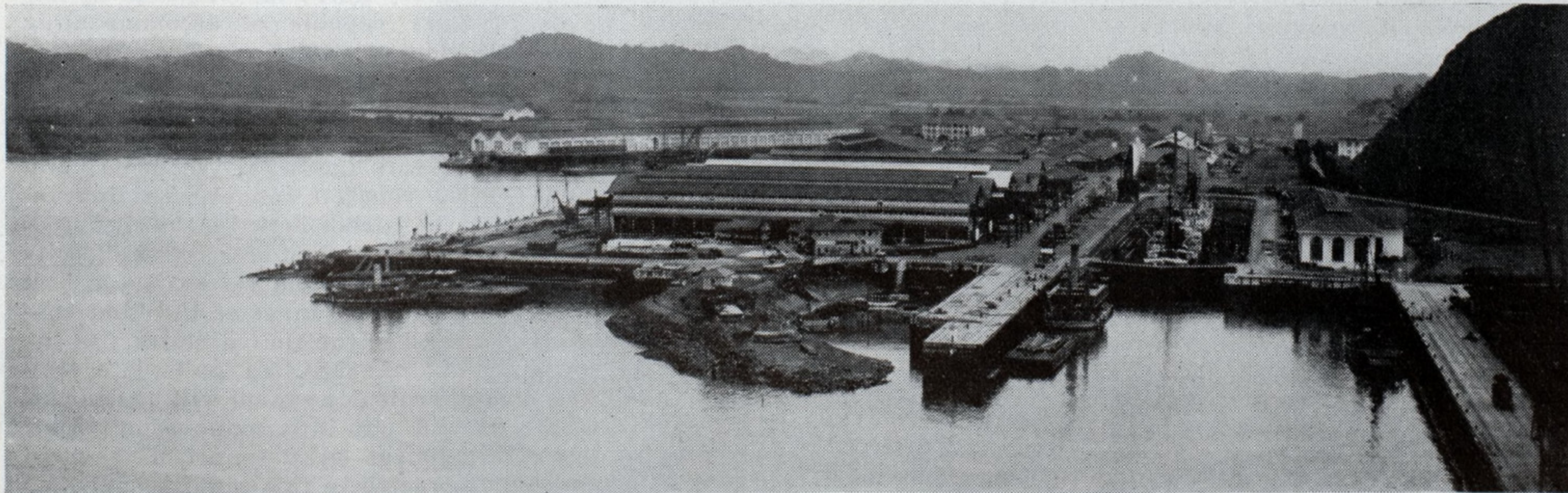
April .....	42,575	108,632
May .....	82,843	85,833
June .....	83,608	79,604
July .....	101,404	41,632
August .....	137,646	62,931
Total .....	517,282	444,949
September .....	149,360	55,638
October .....	122,815	47,247
Novemebr .....	124,905	50,512
December .....	129,003	38,123
January .....	130,965	47,062
February .....	129,234	58,186
Total .....	786,282	296,768
Grand Total .....	1,303,564	741,717

Miscellaneous Trade Routes

The net tonnage in the commercial traffic classed as "miscellaneous trade routes and sailings," comprises the traffic in addition to the six foregoing major trade routes. This traffic amounted to 3,334,705 net tons for the 12-month period ended Feb. 28, 1934, an increase of 379,295 tons, or 12.8 per cent over that passing through in the previous 12 months. It made up 12.6 per cent of the total net tonnage for the 12-month period ended Feb. 28, 1934, as compared with 13.0 per cent of the total for the corresponding period ended Feb. 28, 1933. The daily average tonnage over these routes for the past 6 months was 9975, exceeding the average of the previous 6 months by 20.0 per cent, and that of the corresponding six months in the 12-month period ended Feb. 28, 1933, by 20.0 per cent.

A table showing the traffic in the miscellaneous routes and sailings, by months, for the 12-month period ended Feb. 28, 1934, in comparison with the same months for the 12-month period ended Feb. 28, 1933, follows:

	Tonnage 1933-1934	Tonnage 1932-1933
March .....	249,688	237,692
April .....	243,431	231,879
May .....	245,450	300,758
June .....	222,820	261,867
July .....	259,875	182,266
August .....	308,056	237,087
Total .....	1,529,320	1,451,549
September .....	266,841	285,544
October .....	246,982	231,686
November .....	307,799	205,984
December .....	358,185	343,200
January .....	324,444	247,197
February .....	301,134	191,250
Total .....	1,805,385	1,504,861
Grand Total .....	3,334,705	2,956,410



Inner harbor, Balboa, Canal Zone—Right to left, dry dock, shops and cargo pier





View of the City of Boston from the inner harbor

# PORT of BOSTON

## Commercial and Physical Advantages

BY FRANK S. DAVIS\*

**B**OSTON harbor is more than an ordinary port. Its activities go back to the very beginning of American history. The progress that has been made since those early days in the development of the present modern port of Boston typifies those qualities of its people that have made New England what it is, and have enabled it to steadily advance.

Associated with the commercial growth of the port are the romantic traditions of the beautiful islands that caused a royal visitor to remark to the mayor while viewing the harbor "There isn't any place in the world that surpasses this panoramic view, and to think it is located at the very threshold of the homes of the great masses of people to enjoy."

In colonial days most of the islands were occupied as homesteads and much of the activity of the port centered about them. Subsequently, many of them were fortified and constituted Boston's chief defense to hostile encroachments from the sea. Some of these ancient fortifications, such as Castle island, Governor's island and Fort Warren, have been carefully preserved and afford interesting comparisons with modern harbor defenses. But their fascinating history, as portrayed in Patrick J.

The author, Frank S. Davis, is manager of the Maritime Association of the Boston Chamber of Commerce.

Connelly's booklet, *Islands of Boston Harbor*, is not all that endears them to the people of Boston. From that day in September, 1629, when the beautiful islands caused the first exploration party of white men under Capt. Myles Standish to enter the harbor in a small boat, they have been a most important factor in the development of the port because they form a natural breakwater and afford ample protection for all types of vessels from the small fishing and pleasure craft to the largest ocean going liners.

### Extensive Port Development

No American seaport has undergone a greater degree of transformation than Boston. The present harbor bears little resemblance to its original contour. Vast quarries of granite, hills of gravel, and whole forests were used in changing the waterfront. Walls, piers and causeways were constructed, extensive flats redeemed, and the city's acreage greatly increased. Boston now covers an area of nearly 43 square miles compared with 785 acres when the transformation of the city was begun. Great improvements to the harbor were undertaken in 1902, by the government; in 1912, a comprehensive program for the development of the harbor was started by the commonwealth.

Up to date, more than \$14,000,000

have been expended by the federal government in the maintenance and improvement of Boston harbor channels, and about \$23,000,000 on the facilities of the port by the commonwealth of Massachusetts.

No American seaport presents more interesting contrasts than the port of Boston. Along one section of the waterfront stand the massive granite warehouses constructed more than a century ago with the strength and permanence of the Rock of Gibraltar. In another part of the harbor are the Commonwealth pier and the great Army base, both rated among the world's most modern tidewater terminals. Adjoining them is the mammoth dry dock, the only one in this country capable of accommodating the largest liners, such as the LEVIATHAN and MAJESTIC. On the opposite side of the harbor are marine railways, such as were commonly used years ago in the "schooner" era.

The concrete tunnel extending under the harbor between the city proper and East Boston, passing directly under the custom house, is the first under-water tunnel of the kind constructed in the United States. In the spring of 1934, an up-to-date two-lane vehicular tunnel will be dedicated and put into commission. This will be the latest tunnel of the kind constructed in this country, and thus the oldest and latest under water tunnels in the United States will be



among the facilities of Boston harbor.

Only a few years ago the famous T wharf on Atlantic avenue was the center of Boston's great fishing industry and is still used by the smaller fishing craft. In contrast, the commonwealth in 1914 constructed the Boston Fish pier in South Boston at a cost of \$1,041,171.54, and since then this pier has been recognized as the greatest fish market in this country. It is 1200 feet long and 300 feet wide, and is considered the most modern fish market in the world.

In 1933, vessel arrivals at the Boston Fish pier totaled 7719. They brought 232,583,000 pounds of fish valued at approximately \$6,093,000, this amount being paid to the fishermen.

#### An Outstanding Port

Boston is situated on Massachusetts bay, and is one of the most important ports of the United States, considered both from the standpoint of its facilities and the extent and value of its commerce. It is built on a series of peninsulas, possesses both an inner and outer harbor, of sufficient depth and adequate to accommodate the largest vessels and the greatest possible volume of foreign and domestic commerce. Because of this irregular and indented shoreline, Boston harbor possesses a total water frontage of nearly 116 miles, only a relatively small proportion of which is in active use.

The harbor is surrounded by the most populous sections of the city proper and by busy manufacturing communities which, while within the metropolitan district, have their own individual governments.

The principal deep water anchor-

age area, known as President roads, is located between Deer island and Long island at the entrance to the outer harbor, and is the common meeting point of all the important channels from the sea to President roads. The dredging now being done at President roads by the federal government, for which more than \$1,250,000 have been allotted, when completed will about double the President roads anchorage area, and will afford perfect protection for the commerce of the port and ample to accommodate the largest vessels afloat.

Broad sound North channel leads from Broad sound to President roads from northeastward. This channel has been dredged to a low water depth of 40 feet. It gives to Boston a main ship channel with a depth at high tide of 49½ feet, which is a greater depth than exists at any of the other North Atlantic ports. It is well marked by lighted buoys and an unlighted range.

Broad sound South channel leads from Broad sound in a southwesterly and westerly direction to President roads. It has been dredged 30 feet deep and 1200 feet wide, and is well marked by buoys and lighted ranges.

#### Numerous Channels Available

The Narrows is the channel leading into Boston harbor from southeastward between Boston lighthouse and Lovells Island on the northeast and Point Allerton, St. Georges Island and Gallops Island on the southwest. It has been dredged to a depth of 27 feet and width of 1000 feet, and is well marked. There are unmarked shoals with depths of 21 to 23 feet in the southeastern approach.

The Main Ship channel of Boston inner harbor extends from President roads to the upper end of the navy yard at Charlestown. This channel has a depth of 35 feet at mean low water and a width of 1200 feet. It was originally dredged up to the lower bridges across the Charles river, Mystic river, and Chelsea creek, but the upper end of the channel has shoaled in some places to the extent of several feet.

Mystic river is the approach by water for smaller craft to the cities of Medford, Somerville, Everett and Malden. The deepest draft using the lower part of the river is 28½ feet, and the deepest draft ordinarily going to Medford is 10½ feet.

#### Channels to Other Sections

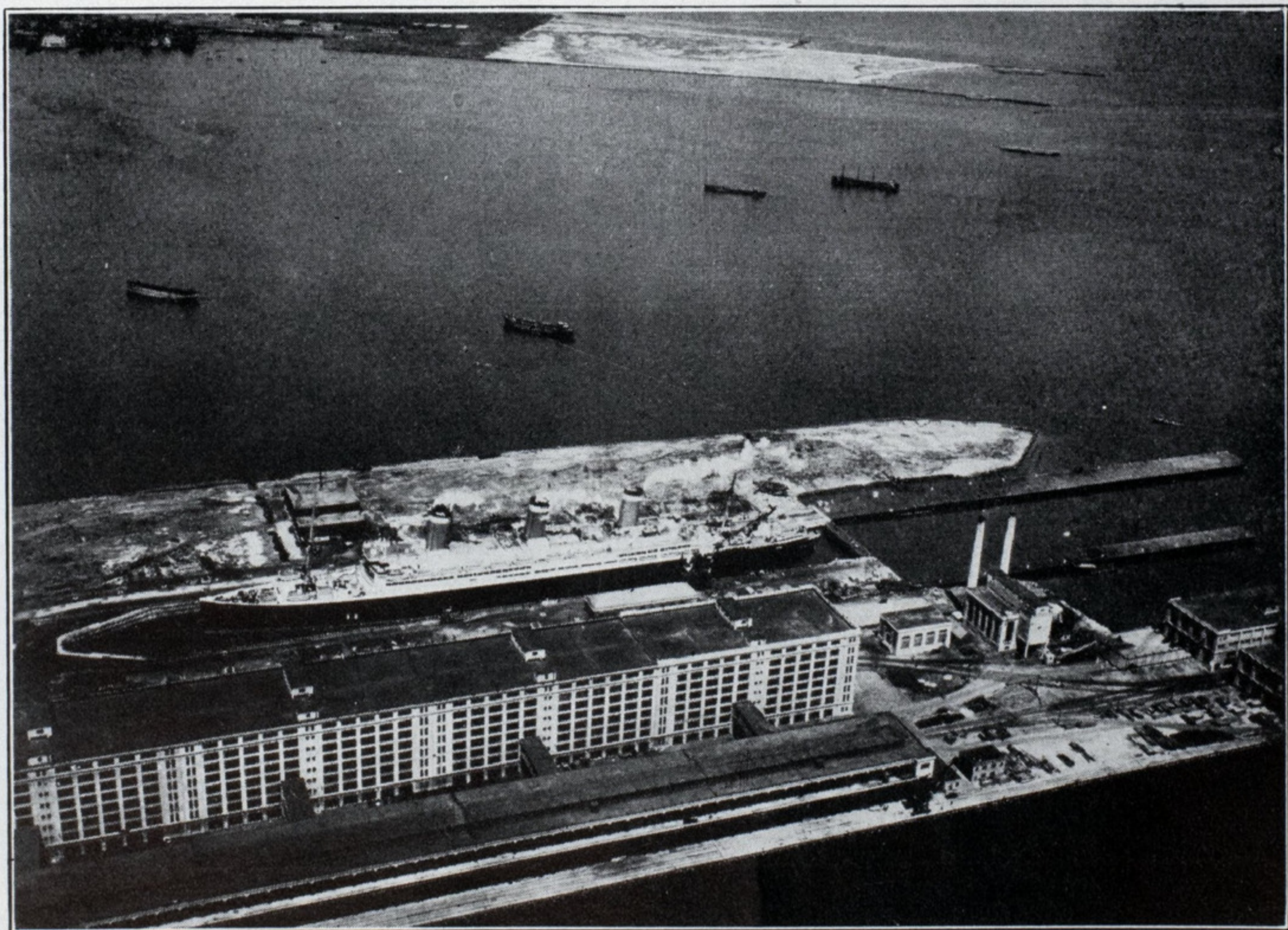
Chelsea creek is the approach to the town of Revere, which is 2½ miles above the entrance. The usual limit of draft of vessels using the lower end of the river is 28 feet, and the upper end 15 feet, the latter being mostly coal barges.

Island End river is a tributary of Mystic river. It has been dredged by private interests 26 feet deep and 140 feet wide from its entrance past the New England Coal & Coke Co.'s wharf, a distance of about 500 yards, and to a depth of 13 feet for a farther distance of about 150 yards to the wharf of the Barrett Co.

Malden river is a tributary of Mystic river and has been improved by dredging a channel 100 feet wide and 15 feet deep at high water. Coal barges having a draft of about 14½ feet are the largest craft now going to Malden.

Fort Point channel extends southward from the Main Ship channel separating Boston from South Bos-

Army base, South Boston. Also largest graving dry dock in the United States, showing the S. S. Leviathan in dock. This dry dock was planned and built by the commonwealth of Massachusetts and was first known as the Commonwealth drydock. Several years ago it was taken over by the navy department and is now operated and controlled by the Boston navy yard





ton. A channel 23 feet deep and 175 feet wide is available from the entrance to Dorchester avenue bridge, a distance of nearly  $\frac{3}{4}$  mile, above which there is a depth of 12 feet to the head of South bay.

A 30-foot channel 300 feet wide from President roads through Dorchester bay has been recommended by the war department. This will open up a tremendous area for industrial sites and new development.

#### Advantages of Boston Harbor

Boston has strong natural advantages. In the first place, it is nearer European ports than its principal rivals. For example, the ocean mileage from Boston to Liverpool is 110 miles less than from Montreal, 194 miles less than from New York, 337 miles less than from Philadelphia, and 493 miles less than from Baltimore. Although not generally known, the distance from Boston to Buenos Aires is 319 miles less than the distance from New Orleans to Buenos Aires. The combined through rail and ocean mileage from interior points to foreign destinations is less through Boston than any of the other ports in the North Atlantic group. For instance, the through rail and ocean distance from Buffalo to Liverpool via Boston is 150 miles less than via New York, 326 miles less than via Philadelphia, and 472 miles less than via Baltimore.

Boston's harbor is close to the open sea. Boston Light is only an hour from the steamship piers. This compares with two hours from the New York piers to Sandy Hook. Boston's advantage is far more striking compared with Philadelphia, 90 miles up the Delaware river; Baltimore, a day's sail up Chesapeake

bay; and Montreal, 1000 miles up the St. Lawrence. This element of nearness to the sea offers the steamship companies greater safety and expedition in their voyages. In spite of being almost on the open sea, all of Boston harbor is perfectly protected by the islands of the lower bay so disposed as to form natural breakwaters.

One of the chief advantages of the port of Boston is the direct rail connections with the principal overseas and other piers. The tracks of either the Boston & Maine, New York, New Haven & Hartford, and Boston and Albany, the three railroads serving the port, reach practically all of the piers. No expensive floatage or lighterage system is necessary. Cargo is transferred between vessels and cars with economy and dispatch. Many of the piers are equipped with the most modern transfer facilities for this purpose.

#### Excellent Rail Facilities

A short distance inland from the modern terminals served by the New Haven railroad at South Boston, the overseas piers of the Boston & Maine at Charlestown, and of the Boston & Albany at East Boston, are extensive so-called "break-up" or classification and storage yards. Full train loads are brought directly to or taken from these yards, which connect directly with the piers.

The total car capacity of the New Haven freight terminal at South Boston, including the commonwealth tracks and United States government tracks, exceed 5600 cars.

The service performed by the New Haven on fresh fish from the modern State Fish pier at South Boston is equal to any in the coun-

try. Carloads of fresh fish are forwarded regularly each day in through trains to New York and key points in the interior, affording deliveries the morning after the cars leave the pier. It is a most valuable contribution to the country's food supply, and has helped to maintain fishing as one of the leading industries of the section.

The new classification yards of the Boston & Maine railroad at Somerville are the acme of modern railroad efficiency. They are equipped with every conceivable device for expediting and facilitating the classification and handling of freight cars, and cost more than \$5,000,000. The modern "hump" method of switching is employed. The yards have a total capacity of 3000 cars, and by use of the "hump," it is possible to break up and classify a train of 30 cars in 15 minutes. One of the interesting features of these yards is the installation of "retarders" and mechanical brakes set in the tracks and controlled from a remote tower. These yards are in close proximity to the waterfront, and designed and laid out largely for the purpose of facilitating the transfer of cargo between railroad and steamer.

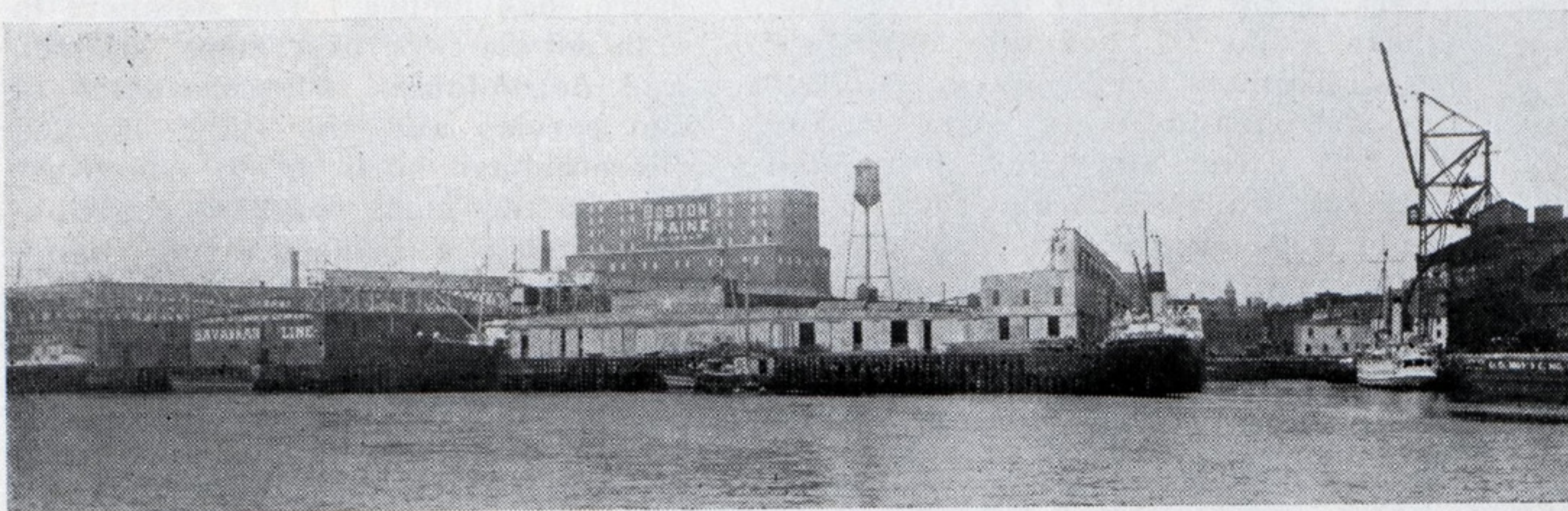
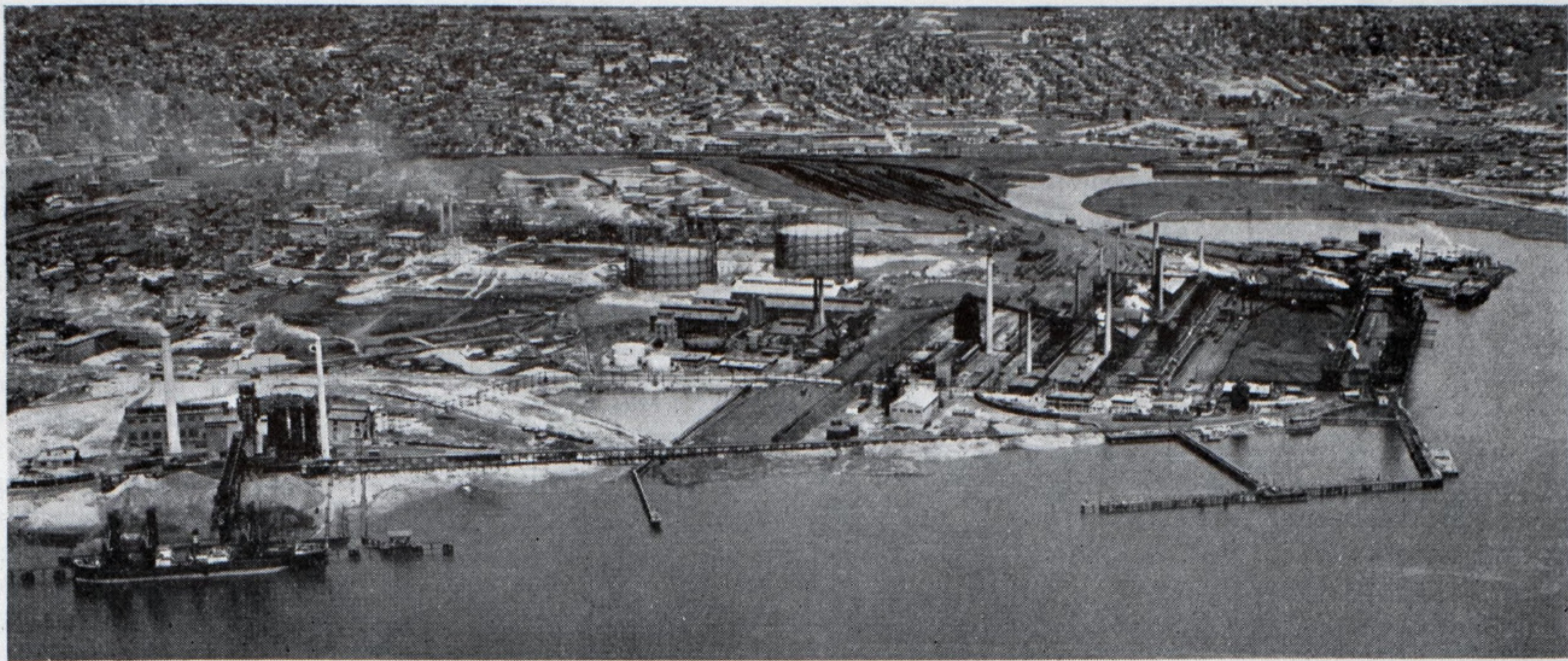
#### Transfer from Rail to Ship

The Boston & Albany freight yard adjoining the overseas piers in East Boston has a capacity of about 500 cars, and the reserve yard within one-half mile of the terminal has trackage for more than 800 cars. Both are connected with the main line of the Boston & Albany by the Grand Junction branch running directly to the piers. Powerful locomotives of the Boston & Albany railroad handle solid train loads of 60



*Commonwealth pier and New York and New Haven railroad yard at Boston*





*Above—Boston and Albany deepwater terminal at East Boston*

*At left — Boston and Maine railroad terminal at Boston, Hoosac docks and elevator*

cars of export freight from West Albany through to the company's overseas piers at East Boston.

The piers on the Boston side of the harbor are served by the Union Freight railroad, a New Haven subsidiary, which is used largely for interchanging cars between the Boston & Maine at Charlestown and the New Haven at South Boston. This is a marginal railroad extending along the waterfront of the city proper and reaches the piers of the principal coastwise lines.

The Grand Junction branch of the Boston & Albany railroad is an outer belt line, starting from the Beacon Park yard at Cottage Farm and extending through Cambridge, Somerville, Everett, Chelsea and East Boston, forming two-thirds of a circle surrounding the inner harbor. More than 70 important industries are located on this branch. It was originally planned as a waterfront belt line extending from the main line of the Boston & Albany to its overseas terminals at East Boston.

Various branches of the Boston & Albany, Boston & Maine and New Haven railroads in reality form another detour or outer belt line. At some time in the future no doubt these stretches of railroad will be connected and developed as a unified outer belt line for the port.

The three steam railroads serving the port of Boston have direct rail connections with all points in the United States, Canada and Mexico. The service rendered by these rail-

roads is exceptional.

No major seaport in the United States is more accessible to the Great Lakes. Train loads of cargo for export are delivered at the Boston & Maine and Boston & Albany waterfront elevators at Boston 48 hours after the grain leaves Buffalo. Once the grain is elevated at Boston, it is available for loading by conveyors directly into steamers' holds, and all floatage and lighterage service, and any extra cost and delay incident to such accessorial terminal services, are avoided. There are three waterfront grain elevators, two at the Boston & Maine terminals in Charlestown, and one at the Boston & Albany terminal in East Boston. Total capacity of the three is 2,500,000 bushels.

#### Through Westbound Service

Through westbound train service is maintained to interior key points by the three steam railroads serving the port of Boston, and thus carloads of import freight, when handled in these through trains on schedule, may be delivered at such points as Chicago the fourth morning after the cars leave Boston piers, Detroit the third morning; Pittsburgh the third day; and Buffalo the second day.

Massachusetts is in a position of leadership in the matter of improved highways. In negotiations leading up to the construction of these highways, they have seldom if ever been considered as a factor in promoting

the commerce of the port of Boston. In the last decade, radical changes have occurred in the method of handling cargo to and from the Boston piers. Only a few years ago the trolley lines operated freight service to interior local points like Worcester, Lowell and Lawrence. The improvement of the highways and the advent of the motor truck caused the disappearance of the interurban trolley line freight service at Boston and the substitution of the more modern method of handling by motor trucks.

The fact that more than 50 per cent of all of the foreign imports handled over the Boston overseas piers is now transported from the piers by motor trucks to the nearby manufacturing cities emphasizes the value of the commonwealth's improved highways as a factor in the building up of the commerce of the port. It is not unusual for one of the powerful modern motor trucks to leave the overseas piers with a string of trailers loaded with many thousands of pounds of heavy bulk commodities such as wool.

The Army base at South Boston, now operated commercially by the Boston Tidewater Terminal, Inc., is another striking contrast to the older terminals and warehouses. It is about a mile long, has berthing space for nine ocean going steamers, and a water depth of 40 feet alongside. This terminal was constructed by the federal government during the war at a cost of more than \$24,000,000. Most of it has now been turned over



to the shipping board for commercial purposes and is being operated under lease by the Boston Tidewater Terminal, Inc.

Commonwealth pier, constructed by the commonwealth of Massachusetts at a cost of approximately \$4,400,000, is equipped with most modern cargo handling devices, many of them electrically operated; the tracks are counter sunk putting the car floors on the level with the pier. The upper stories are designed especially for the accommodation of overseas passenger traffic. On the occasion of a recent inspection, this pier was pronounced by Commodore Herbert G. Hartley, formerly commodore of the United States lines fleet, to be the finest overseas pier in the world.

Passengers for Buffalo and points west arriving in steamers at Boston are landed at Commonwealth pier, a short distance from the South Station where through trains leave almost hourly over the Boston & Albany for the West. The Boston & Maine also maintains an excellent through passenger service from the North Station.

#### Size of Vessel Increasing

The type of vessels serving New England's commerce through the port of Boston has changed very noticeably in the last quarter of a century. The size is steadily increasing and the sailing craft that formerly filled the harbor have practically disappeared. Only a few years ago, it was not unusual to see the inner harbor fairly dotted with schooners, some of them with five or six masts, and with a cargo capacity of about 2000 tons. These sailing vessels engaged very largely in the coal carrying trade between Hampton roads and other Atlantic ports, have been superseded by steamers of 8000 tons or more capacity, which make the round voyage in a week or less, and while not making as picturesque a display as the schooners, actually transport in a given time an infinitely greater volume of cargo.

It is a far cry from the famous clipper ship days when a voyage from Boston and the other New England ports to the Orient consumed many months and sometimes years, to the semi-monthly round-the-world service of the Dollar line, whose steamers circle the globe in three months. This service, which has been maintained at Boston in recent years, is performed with almost the regularity of a railroad schedule. It affords a striking example of the advance that has been made in commercial steamship services. There are few foreign countries from which steamers do not ply directly to Boston and to which, either directly or indirectly, regular steamship services are not maintained from this port. The list includes Africa, Asia, Australia and

New Zealand, Azores, Baltic, Ceylon, Dutch East Indies, Europe, India Levant, Mediterranean, South America, West Indies, Bermuda, Central America and Mexico.

#### Value of Imports High

It is not uncommon to observe steamers of a dozen different nationalities at the Boston piers discharging products from practically every country in the world. Cargoes brought by these steamers consist chiefly of raw materials for New England manufacturing industries. Boston is generally regarded abroad as one of the best ports on the Atlantic seaboard in respect to volume and character of westbound or import cargo, and, for this reason it normally ranks second only to New York in the value of its foreign imports. Some of the more important new commodities bringing steamers to this port in recent years are ore in full cargo lots from Spain and Algiers, molasses from the Argentine, coal from Soviet Russia, palm oil from Africa and cocoanut oil from the Far East, the last mentioned two commodities being used in large quantities by local industries in the manufacture of soap.

Boston has the distinction of being the first port in the United States from which steam vessels sailed to Great Britain, and for eight years was the only such terminal. Since Samuel Cunard brought the *BRITANNIA*, of 2050 tons to Boston in 1840, the world's largest steamers, such as the *MAJESTIC* 56,000 tons, and the *LEVIATHAN* 59,000 tons, have entered the port.

The modern passenger steamers now operated regularly in the Boston service by the Cunard, Anchor, White Star, Furness Withy and other overseas lines, have a gross tonnage ranging from 16,000 to 28,000 tons, and frequently have a draft as great as 32 feet.

Recently the foreign passenger service of the port has been augmented by the addition of steamers of the North German Lloyd and Hamburg-American lines to Ireland and Germany; the Fabre and Cosulich lines to the Azores and Mediterranean ports; the Greek line to Greece; the Gdynia America line to Poland, and the Canadian National steamships to Bermuda and British West Indies.

Boston has the advantage of superior coastwise services to all of the principal coastwise ports, St. Johns, N. F., to Jacksonville inclusive. Some of the steamers in the coastwise and provincial trades are among the finest in the world, and are the last word in luxury of appointment and general attractiveness. Two magnificent steamers, the *ACADIA* and *SAINT JOHN*, equipped with all of the luxuries of modern up-to-date hotels, were recently placed in commission

and are notable additions to the coastwise trade of the Eastern Steamship Lines, Inc.

Since 1914 when the Panama canal was opened and direct steamship services between North Atlantic ports and Pacific coast ports through the Panama canal was inaugurated, Boston's intercoastal business has grown by leaps and bounds, and in actual value to New England's industries it now equals, if not surpasses, the foreign commerce of the port.

At present this service is maintained by the American Hawaiian Steamship Co., the Luckenbach Steamship Co., the Dollar Steamship line, the Isthmian, Quaker and Shepard lines, and the outbound sailings from Boston average nearly a score each month. The steamers in this service are first class, staunch and dependable. The character of the service and the rates charged therefor are such as to constitute one of the most valuable contributions from a transportation standpoint that has been made available to New England industries in recent years.

According to the latest available war department report, the total waterborne tonnage for the year 1932 amounted to 14,012,172 short tons, valued at \$437,499,622. It will thus be seen that the steamship services maintained by the lines serving this port have been a very important factor in the commercial and industrial welfare of all New England.

Waterborne commerce is greater now than at any time in the port's history. Boston ranks second only to New York among United States ports in total volume of waterborne commerce. This is verified by official reports of the chief of engineers, war department, and the United States shipping board.

Likewise, the improvement and expansion of the facilities of the port since the war have made possible the handling of a much greater volume of waterborne traffic, with less harbor congestion and activity than prevailed when vessels of less tonnage were employed and practically the entire commerce of the port was restricted to the inner harbor and at railroad controlled terminals.

The following table shows the growth in recent years of the commerce of the harbor tributaries:

#### Comparative Statement of Traffic (Short Tons)

	1920	1932	Increase
Chelsea Creek ..	931,149	1,463,088	531,939
Mystic River ...	1,187,565	2,744,937	1,557,372
Island End			
River .....	1,157,230	2,095,282	938,052
Little Mystic			
River .....	*175,150	241,386	66,236
Weymouth Fore			
River .....	129,466	1,949,091	1,819,625
*1921			

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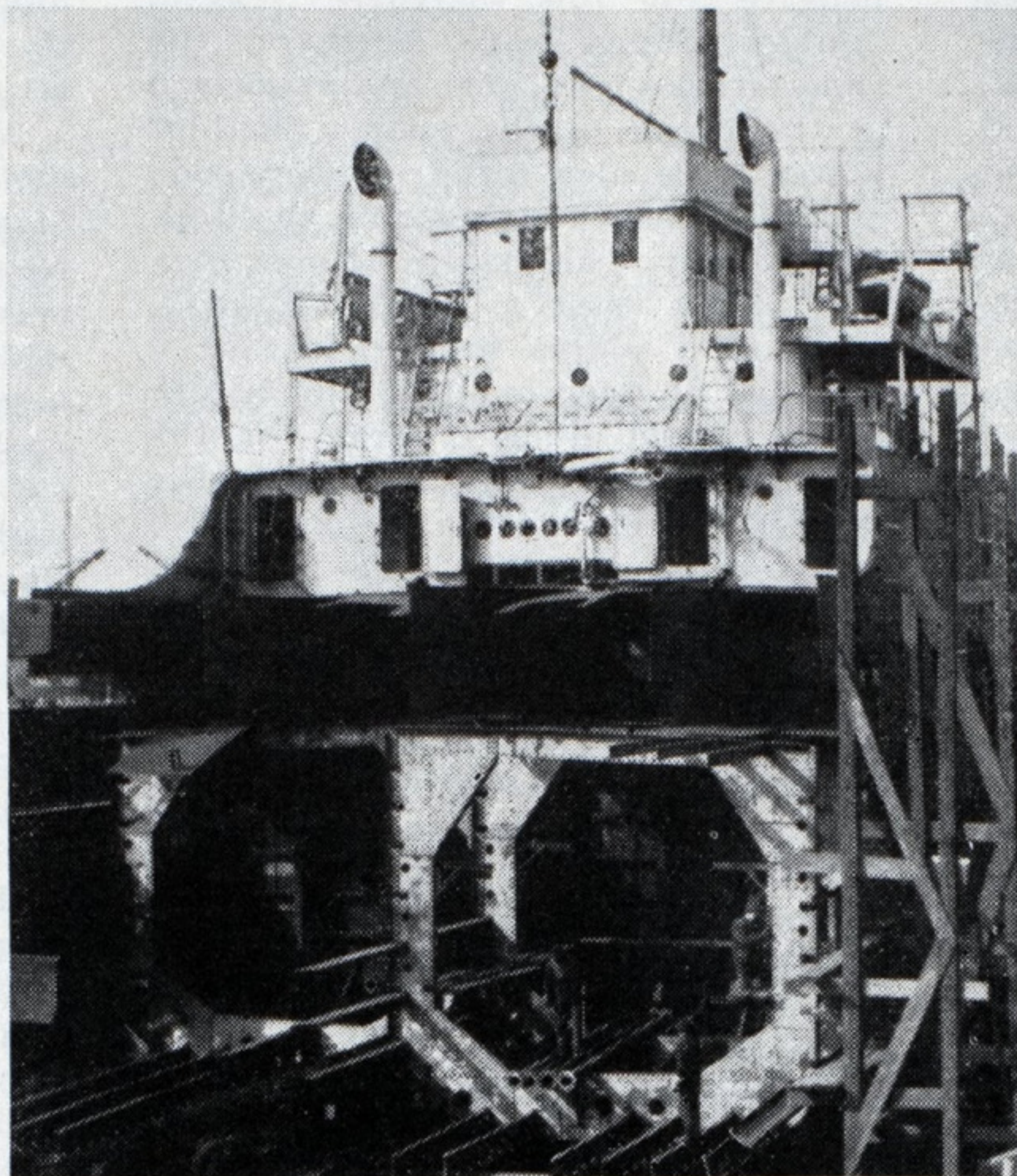
# Lengthen Oil Tanker for Lake Service

## Carrying Capacity Nearly Doubled

**T**HE S. S. MAINE, ex-FRANKLIN, Texas Co. tanker, is probably unique among vessels in that she was first shortened and then lengthened all within a period of less than one year. In the spring of 1933 it was decided that the company needed a tanker for the distribution of petroleum products on the Great Lakes. The MAINE was selected from its fleet for this purpose. But this vessel was too long to permit transit through the locks of the St. Lawrence canals and it was necessary to shorten her. She was built for the United States shipping board, in 1921, by the Staten Island Shipbuilding Co. at Mariner's Harbor, Staten Island, N. Y. Her original dimensions were: length overall, 311 feet, 6 inches; length between perpendiculars, 300 feet; beam molded, 43 feet; depth molded, 26 feet; and gross tonnage, 2842.

Sometime in May, or early in June, 1933, the Robins plant of the Todd Shipyards Corp., New York, was awarded a contract for shortening the MAINE. The forward end was shortened about 52 feet, 8 inches by constructing a new bow which was faired into the old structure well aft in No. 2 cargo tank or approximately 116 feet aft of the original stem. This eliminated the forward fuel oil tanks, cargo hold, No. 1 cargo tank and No. 1 summer tank. The stern counter was also shortened about 3 feet, 10 inches.

In shortened condition the dimensions of the MAINE were: length overall, 255', 9", length between perpendiculars, 247 feet, 7 inches; gross tonnage, 2370; and cargo capacity in barrels, 22,600. She entered service on the Great Lakes sometime in July, 1933.



*S. S. Maine—Forward end after hauling apart on dock at Great Lakes Engineering Works*

After operating the MAINE on the Great Lakes for the remainder of the season of 1933, The Texas Co. found that additional carrying capacity was needed. A contract was therefore placed in December, 1933, with the Great Lakes Engineering Works, River Rouge, Mich., to lengthen this vessel 105 feet, 9 inches, amidships.

The plans for this considerable reconstruction job were prepared by George B. Drake, naval architect, New York, in accordance with the requirements for classification by Lloyds Register of Shipping. The work was carried out to the special survey of the society under the general supervision of Gavin Drummond, representative of Lloyds Register of Ship-

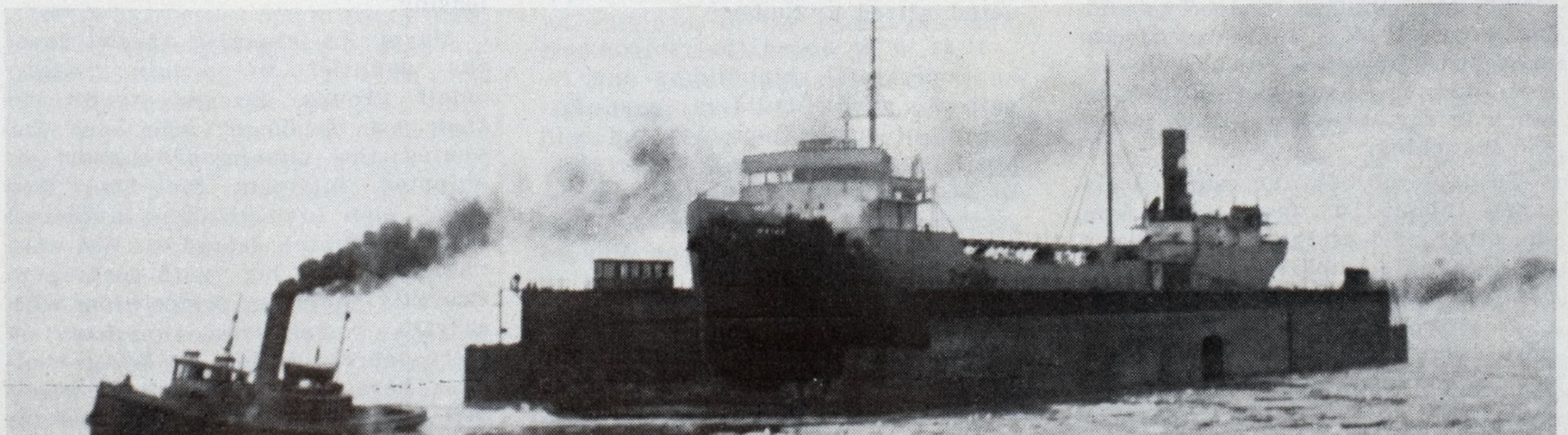
ping on the Great Lakes.

With the additional length the total cargo tank capacity was increased by over 20,000 barrels, or nearly double what it was when she first arrived on the lakes. The new cargo tank capacity is about 43,000 barrels on an estimated draft of 19 feet, 2 inches. Because of the unusually low stage of the water levels on the Great Lakes at the beginning of this season, with a recommended draft of only 17 feet, 6 inches, it will be impossible to use all of this increase. Her permissible load at a draft of 17 feet, 6 inches, will be about 4000 barrels less than the maximum capacity.

Dimensions of the MAINE, after lengthening, are: 361 feet, 6 inches in length over all; 353 feet, 4 inches in length between perpendiculars; the beam and depth remain the same; and the cargo tank capacity as mentioned above, on full load draft, is now about 43,000 barrels at loaded draft.

The propelling machinery was not changed. It consists of a triple expansion, reciprocating steam engine with cylinders 21½ x 35 x 59 inches in diameter and a stroke of 42 inches. Steam is supplied by two Scotch type boilers operating at 200 pounds per square inch working steam pressure. The boilers are oil burning. The shipyard furnished four new bronze blades for the built-up propeller. It is anticipated that the maximum speed of the vessel as lengthened and with full load will be 14 statute miles per hour.

The new part is divided by three transverse bulkheads and one center-line bulkhead into six lower tanks. There are also six summer tanks formed by the sides of the expansion



*Tanker Maine in dock after lengthening, being towed to dry dock slip*



trunk and the lower deck.

Lengthening of the vessel was carried out in the floating dry dock at the plant of the Great Lakes Engineering Works at River Rouge. This dock is made up of four sections which can be connected in any combination. Normally three sections are connected to make one dock 610 feet long. The fourth section, 150 feet in length is generally used separately, for tugs and small work. As it was expected that the MAINE would be in dock about two months the sections were rearranged to make one dock 430 feet long for the lengthening job, and one dock 335 feet long to take care of a number of medium sized vessels while the process of lengthening was under way.

All steel for this work was ordered within a few days after the contract was let late in December last year. The vessel was floated April 5, 1934 and delivered to the owner April 21.

The midship section and bulkheads for the new part were laid down in the moldloft from plans furnished by the owner. All plate widths, framing and rivet spacing were checked from the ship. The bulkheads were all laid out, punched, and partially assembled before the ship was cut and all shell and deck plates which did not connect to the old work were punched and sheared ready for erection.

On Feb. 3 the MAINE was placed in drydock and the section of the dock with the ship in place was then towed around to the fitting out slip where additional crane service is available. All oil tanks had been thoroughly steamed and cleaned and tested to make sure that they were gas free. However, as soon as actual work was started, additional gas was liberated from under scale and under the framing and this condition had to be watched very closely during the entire progress of the work. No burners were used in cutting the ship in two, all rivets being either drilled or cut off with the rivet buster.

The vessel was cut just aft of the bridge which made the forward end about 96 feet long and the after end about 150 feet long. The forward end, which was moved, had a total weight of about 700 tons. Two sliding ways of 16 x 16 inches timber were fitted, spaced about 19 feet centers, and the bow was wedged up much in the same manner as for an end launching.

To haul the bow the required distance (about 106 feet) away from the other part of the vessel, three 8 x 10 inches double cylinder, single drum, winches, each pulling on a 7-part purchase of  $\frac{3}{4}$ -inch diameter wire rope, were used. On account of the extremely cold weather there was some doubt as to the amount of power required, but the arrange-

ment proved to be ample. Moving the bow was completed on Feb. 13. The actual pulling time for the full length was about 8 minutes.

In the erection of the new part the work was carried out just like in a new ship except that all connections to the old work had to be lifted from the job.

For additional strength, to compensate for the increased length, doubler plates were fitted on the sheer strake both port and starboard at the break of the poop. Doubler plates were also fitted on each side on the outboard stringer on the deck for a distance amidships of over one-half of the vessel's length. Similarly doubler plates were fitted for a distance of over one-half the length of the vessel along C strake on the bottom on both sides. This is the strake next but one to the garboard.

After the riveting was all completed, all the tanks were tested in the dock up to a point above the light waterline. The vessel was floated on April 5 and the tank testing was completed afloat.

In addition to the lengthening, a new upper pilot house was built, the foremast was shifted and some changes were made in the discharge piping.

The MAINE is fitted with wireless and carries a wireless operator.

## Fire Protection Meeting

There has been increasing interest in fire prevention and protection on the part of those engaged in maritime affairs and as their problems are different from those usually encountered on shore, the directors of the National Fire Protection association have decided to establish a marine section, which shall devote itself exclusively to maritime affairs. With this object in view an organization committee was appointed. The American Steamship Owners association formally designated Mr. Cabaud and Mr. Harwood to be members of this committee; the National council of American Shipbuilders designated Joseph W. Powell and Capt. Roger Williams, and the National Association of Engine and Boat Manufacturers designated Alfred E. Luders.

It is to be hoped that shipowners and operators, shipbuilders and repairers, yacht builders, manufacturers of marine engines, all will avail themselves of this opportunity to become members of this marine section and make it a success. The marine section will meet on May 14 at Haddon Hall, Atlantic City, N. J.

Lambert & German, naval architects and marine surveyors, have removed their offices to 1019 Canada Cement building, Montreal, Que.

## New York Begins Campaign to Encourage Shipping

The Foreign Commerce club of New York, on Wednesday evening, April 18, in the grand ball room of the Hotel Astor, celebrated "Port of New York Night" as the opening gun of a vigorous campaign to restore and hold the natural commerce of the port against the incursions of all comers.

More than a thousand members and dinner guests of the club heard Mayor Fiorello H. La Guardia, of New York, deliver a vivid keynote speech, blunt in its earnestness, in which he promised shipping interests a square deal in the leasing of piers, docks and other terminal facilities, full co-operation of the authorities with the club in its trade conservation efforts, declared war to the finish on rackets and grafts, and made a stirring plea for his free zone plan.

Declaring that the unique characteristics of the port of New York enabled it to compete on even terms with any port anywhere, Mayor La Guardia asserted that high port charges were the "result of the low underhand rather than of the high overhead." He vigorously assailed the apathy of the city authorities for the past twelve years and the "belief that has developed in this city that shipping simply had to come to New York and the lack of vision which has underestimated the energy and effort of other ports to draw commerce away from New York."

A new leasing policy was announced by the mayor, who said: "I now announce that the policy of this administration will be to further the interest of commerce and to encourage shipping coming to New York. Anyone desiring to lease or rent piers or docks can get them direct without the aid of any intermediary or any political fixer. I want to establish lower rates and dock charges and want long term leases of piers to be conducted in the open. I also want to eliminate any possibility of monopoly of piers or docks as well as the vicious system of sub-leasing."

Mayor La Guardia threw down the gauntlet to certain "selfish small groups, interested only in their own business" who have prevented the unanimous support of shipping interests for his "free zone" plan to utilize the municipal piers on Staten Island. "We were charged," said he, "with seeking to use city piers in competition with private warehouses, whereas we were merely trying to bring business here from other ports where Army base piers were being used for the same purpose."



## Heimann to Retire May 1 As Bureau Director

Henry H. Heimann, who has served with distinction as director of the shipping board bureau of the department of commerce since January, will retire from this position and return to his former post as executive manager of the National Association of Credit Men. He had been given a leave of absence for three months to accept the call of Secretary Roper to serve as director of the shipping board bureau. This leave was extended from April 16 to May 1.

James C. Peacock, Washington attorney, who aided in the preparation of wartime shipping legislation was appointed by Secretary Roper, on April 11, as special assistant to Mr. Heimann as well as a member of the advisory committee. It is believed that Mr. Peacock will become acting director when Mr. Heimann retires on May 1, with the understanding that the latter will continue to give some time to shipping problems and the enactment of legislation to make effective the proposed ship subsidy program, in the drafting of which he has taken a leading part.

Mr. Heimann's services as director of the shipping board bureau have been of great value and have been highly appreciated not only by the administration but by all others interested in the development of American shipping.

## Receives Safety Award

Capt. Flavel M. Williams, on March 27, was presented with a gold medal by the American Museum of Safety for his invention of the fog navigating camera (described in the April MARINE REVIEW).

This ingenious instrument is considered by shipmasters as an important contribution to the safety of navigation in foggy weather. A camera of this type is now in use on the United States liner MANHATTAN.

## Strike of Shipyard Workers

What has turned out to be an unexpectedly prolonged strike of shipyard workers began on March 27 when some 3000 employes of the New York Shipbuilding Corp., Camden, N. J., walked out, demanding a wage increase of 25 per cent and recognition of their union. An offer by the company of a 10 per cent increase was rejected.

On April 17, C. L. Bardo, president of the New York Shipbuilding Corp., issued a statement to the effect that all negotiations with the striking employes would be discontinued pending the outcome of the requested investigation of contracts between the shipbuilding company and the United

States navy for the purpose of ascertaining to what extent the profits on these contracts would permit granting increased wages to employes.

In his statement Mr. Bardo said in part:

"Obviously it would be the height of business folly to undertake to complete investigations for a wage agreement in Camden while at the same time contracts were being opened for revision without knowledge of what this revision might be. No man can at this stage accurately predict what the cost of these ships will be when finished two or three years hence. Discussions, therefore, will be discon-

### GREAT LAKES RED BOOK

*THE Great Lakes Red Book, vest-pocket directory giving the names of owners, operators, vessels and where appointments have been made, captains and engineers of all shipping on the Great Lakes, for the year 1934 in its thirty-first annual edition, will be ready about May 5. The Red Book is published each year at Cleveland, by MARINE REVIEW under the direction of A. H. Jansson, editor.*

*The 1934 edition of the Red Book lists over 1500 vessels of the Great Lakes. There is also a complete directory of the shipbuilding and ship repair yards on the Great Lakes. This directory gives the names of all principal officers and the drydock, repair and building facilities at each yard.*

*Individual vessels and fleets are alphabetically arranged. The capacities of all ore carriers are given and there is also a complete port directory.*

tinued until the situation at Washington has been cleared up."

At the request of the industrial relations board for the shipbuilding industry, the national labor board announced April 10 that the board has taken jurisdiction of the strike of employes of the New York Shipbuilding Co., Camden, N. J.

The Philadelphia regional labor board is acting as the national labor board's representative in handling the situation. F. W. Chappell, conciliator of the federal department of labor, is co-operating with the Philadelphia regional labor board.

David Adams has been appointed Pittsburgh district sales manager of The Falk Corp., Milwaukee, succeeding W. O. Beyer, who recently resigned to become a member of the Pittsburgh civil service commission.

## Will Build New Liner If Leviathan Is Laid-up

It is understood that the United States lines has made a proposal to the shipping board bureau to be relieved from operating the LEVIATHAN and in return the company would definitely engage to build a new cabin liner to run with the MANHATTAN and WASHINGTON. The proposal is that the United States lines will set aside a fund equal to the yearly loss from operating the LEVIATHAN which, it is estimated, will total \$560,000 per year on the basis of seven voyages. The new vessel which it is proposed shall be built will cost over \$10,000,000, possibly as high as \$12,000,000, the intention being that the proposed vessel is to be the finest cabin liner afloat and superior in both accommodations and speed to the popular MANHATTAN and WASHINGTON.

This proposal is receiving careful consideration by the bureau. Mr. Heimann in a recent statement said in part:

"The United States lines contention is that the operation of the LEVIATHAN involves a loss of \$80,000 a trip and that the aggregate loss is estimated to be at the rate of \$560,000 per year.

"The United States lines proposes, in lieu of operating the LEVIATHAN, the construction of a new ship of the MANHATTAN-WASHINGTON type with slightly added speed and setting aside by the lines of a fund approximating the yearly loss from the operation of the LEVIATHAN, which fund is proposed to be placed in escrow and to be returned to the United States lines when and if such new ship is constructed. In case of failure to build within an agreed period, the sum so set aside, according to the proposal, would revert to the United States government as liquidating damages.

### Jones-White Law Applies

"Such a ship as contemplated by the proposal would be built under the Jones-White law, wherein the government is authorized to loan up to 75 per cent of the cost of the ship, and the operator is to provide the remaining 25 per cent of capital. The 75 per cent loan to the operator, it is proposed, is to be repaid to the government in accordance with terms satisfactory to the government.

"The contention of the United States lines is that the operation of the LEVIATHAN at an estimated loss of approximately \$560,000 a year would neither benefit the government nor the ship operator but contend on the contrary, would prove a financial burden to the ship operator from which relief is sought. The operating company emphasized the value of a new ship as an addition to the American merchant marine."



# Late Decisions in Maritime Law

## Legal Tips for Shipowners and Officers

Specially Compiled for Marine Review

By Harry Bowne Skillman

Attorney at Law

IN THE case of *G. K. WENTWORTH*, 67 F. (2d) 965, it appeared that a river tugowner placed the captain in complete charge and relied on the captain's best judgment. While proceeding upstream, pushing three barges lashed abreast, the tug collided with a steamship traveling down the river. It was held in a suit by the steamship owners that the fact that the improper manner of placing a lookout according to custom known to the tugowner contributed to the collision was not such privity or knowledge by the owner as to prevent limitation of liability. The owner was entitled to rely on observance of the rules of navigation by a competent master, as regards limitation of liability, and could not be held personally liable for the falling off in value of the vessel between the time of the collision and the time of the surrender in limitation proceedings, unless depreciation was the shipowner's fault.

\* \* \*

IN general, a seaman does not assume the risk of any unseaworthiness, though known to him when he embarks. This does not however excuse him when he has an alternative, nor does it excuse those who, though strictly speaking they are seamen, are employed upon harbor craft, on which they serve only during the day, leaving each night to go home, and renewing their work every morning, like any shore workmen. Such men are in the position of longshoremen or other casual workers on the water, who assume all obvious risks, quite as though they were injured on shore. Applying this rule, it was held in the case of *Scheffler v. Moran Towing & Transportation Co.*, 68 F. (2d) 11, that a cook injured when acting as a deck hand while scows were being made fast to a tug by negligently getting his leg in a bight of a towing strap assumed the risk of the tug's shorthandedness, even if shorthandedness rendered the tug unseaworthy.

\* \* \*

THE duty to use care in keeping a ship and her appliances in safe condition, e. g., seaworthy, is a continuing duty resting upon the owner and is nondelegable. Seaworthiness comprehends, not only the condition of the vessel for the purpose of the voy-

age, but also the safety of the appliances by means of which the passengers and freight are embarked and disembarked. The burden to show that a vessel is seaworthy is upon the owner, it was held in the case of *Henson v. Fidelity & Columbia Trust Co.*, 68 F. (2d) 144. In this case it was further decided that shipowners are exempt from liability (other than that due to imputed negligence) when they exercise due diligence in the selection of trustworthy, experienced, and capable persons to repair and make their ships seaworthy, but where the owner engaged a country blacksmith to weld a ferry chain, he was liable for the death of occupants of a truck resulting from the breaking of the chain when the truck was being driven off the ferry, nor was the owner entitled to limited liability.

\* \* \*

OFFICERS of the coast guard may go on board any vessel at any place within the United States and within four leagues of the coast to examine the manifest and make search and examine a vessel without the necessity of showing probable cause in advance or procuring a search warrant. This power involved the power to go so far in searching the vessel, it was declared in *United States v. Wischerth* 68 F. (2d) 161, as to ascertain whether she was engaged in fishing in accordance with her license, and officers, having discovered liquors thereon, had the right to search completely and seize the contraband cargo.

\* \* \*

OCEAN carriers, by specific regulations distinctly brought to the knowledge of the passenger which are reasonable in their character and not inconsistent with any statute or their duties to the public, may protect themselves against liability, as insurers, for baggage exceeding a fixed amount in value, except upon additional compensation proportioned to the risk. Where the language of the valuation clause contains notice to the shipper or passenger of a definite agreed valuation or limitation unless a higher value is declared and increased compensation paid to the carrier, the liability of the carrier must be measured by the ordinary valuation, since it has received only the ordinary rate. The fact that the passenger is an infant at the time

of the voyage does not relieve the passenger from compliance with the valuation clause of the ticket on which she traveled.—*LEVIATHAN*, 4 Fed. Supp.

\* \* \*

WHILE the court decisions have been liberal, holding not only those things which are physically material and absolutely necessary to her existence or preservation which are incorporated into her or used on board to be necessities for a vessel, but also those which a careful and prudent owner would provide, to enable her to perform well the functions which, as a maritime agent, she is designed to perform, it was held in the case of *HENRY S.*, 4 Fed. Supp. 953, that pound nets and poles used in fishing grounds and operated in stationary and permanent positions are not a part of the equipment of a fishing boat subject to a maritime lien for the purchase price of an engine installed in the boat.

\* \* \*

IT IS required of a carrier of goods by sea that he furnish a seaworthy vessel at the beginning of the voyage and that he complete the voyage by the nearest route to the destination. A trial trip by a vessel is not a customary part of a voyage from loading place to destination, and where on the trial trip a vessel went out of the usual course from Mobile to Antwerp, it was guilty of deviation. Deviation was not excused by liberty clauses in bills of lading providing that the shipowner might have liberty to proceed to any port in any order, where, on return from the trial trip the steamship did not proceed to the port of Pensacola, but discharged officers constituting the trial board at Pensacola Buoy.—*CITY OF BRUNSWICK*, 4 Fed. Supp. 908.

\* \* \*

THE word "seaman" within the provision of the merchant marine act, authorizing a seaman to maintain an action at law for damages for personal injuries, was broad enough, said the court in the case of *Baltimore & Ohio Railroad v. Zalrobsky*, 68 F. (2d) 454, to include a stevedore engaged in maritime work. Such provision did not abrogate an injured stevedore's right to bring an action for damages under the general maritime law for injuries sustained in the course of employment on a ship prior to enactment of the harbor workers' compensation act.



# Marine Business Statistics Condensed

## Record of Traffic at Principal American Ports for Past Year

### New York

Month	(Exclusive of Domestic)		(Exclusive of Domestic)	
	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
March, 1934	302	1,706,307	313	1,757,221
February	265	1,481,004	267	1,508,905
January	266	1,649,590	284	1,629,438
December	263	1,496,477	291	1,576,199
November	243	1,257,443	277	1,452,269
October	278	1,573,534	268	1,487,369
September	294	1,847,558	289	1,771,847
August	315	1,884,475	316	1,928,611
July	311	1,719,502	277	1,536,284
June, 1933	268	1,624,929	299	1,757,814

### Philadelphia

(Including Chester, Wilmington and the whole Philadelphia port district)  
(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships		No. ships	
	ships	Net tonnage	ships	Net tonnage
March, 1934	59	162,480	48	140,311
February	42	129,940	36	109,973
January	45	139,259	47	133,427
December	54	175,715	45	135,969
November	47	144,111	40	119,896
October	68	186,588	51	152,700
September	65	182,418	44	126,290
August	61	181,283	61	178,894
July	69	203,042	53	151,781
June, 1933	51	152,234	54	149,616

### Boston

(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships		No. ships	
	ships	Net tonnage	ships	Net tonnage
February, 1934	71	247,077	46	162,542
January	97	330,320	60	225,075
December	84	303,806	52	236,871
November	90	323,540	62	230,969
October	96	335,488	60	210,010
September	110	348,981	80	279,531
August	129	453,348	101	329,686
July	124	410,500	96	379,721
June	118	378,179	93	303,239
May, 1933	111	295,854	83	254,667

### Portland, Me.

(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships		No. ships	
	ships	Net tonnage	ships	Net tonnage
March, 1934	13	33,399	13	33,399
February	11	27,213	11	27,213
January	9	22,908	10	25,570
December	13	31,801	13	32,589
November	15	29,335	18	35,579
October	14	27,953	14	32,913
September	15	26,225	12	28,028
August	16	28,877	18	32,727
July	11	24,324	9	23,063
June, 1933	11	24,615	12	26,271

### Providence

(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships		No. ships	
	ships	Net tonnage	ships	Net tonnage
March, 1934	5	17,973	2	7,422
February	7	20,959	2	6,882
January	2	7,694	.....	.....
December	5	5,089	2	8,350
November	3	8,568	4	12,794
October	4	13,606	4	9,730
September	2	4,430	5	13,279
August	6	11,862	4	10,186
July	3	6,171	2	9,465
June, 1933	6	16,192	2	4,437

### Portland, Oreg.

(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships		No. ships	
	ships	Net tonnage	ships	Net tonnage
March, 1934	32	121,085	50	186,817
February	25	95,774	52	198,593
January	32	116,610	50	188,401
December	31	119,833	51	184,646
November	29	108,890	35	130,457
October	26	102,926	46	173,030
September	25	97,576	38	141,839
August	22	83,506	34	129,908
July	26	99,339	29	111,559
June	20	78,651	34	120,089
May, 1933	25	98,688	28	105,115

### Baltimore

(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships		No. ships	
	ships	Net tonnage	ships	Net tonnage
March, 1934	92	288,061	88	274,131
February	77	261,122	77	263,236
January	78	256,942	80	265,681
December	94	298,001	92	286,746
November	90	270,023	88	267,784
October	88	284,997	90	289,864
September	85	273,994	84	270,189
August	95	299,114	98	307,841
July	91	272,589	90	282,788
June	65	205,724	71	240,487
May, 1933	79	237,046	78	229,333

### Norfolk and Newport News

(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships		No. ships	
	ships	Net tonnage	ships	Net tonnage
March, 1934	23	64,469	60	151,360
February	16	47,708	41	102,933
January	22	68,930	41	112,922
December	17	57,307	42	119,186
November	12	24,053	38	79,620
October	8	18,873	38	83,525
September	10	24,615	24	53,036
August	8	16,472	34	68,011
July	16	32,370	34	71,798
June, 1933	16	30,163	31	60,544

### Jacksonville

(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships		No. ships	
	ships	Net tonnage	ships	Net tonnage
March, 1934	9	16,338	9	11,193
February	8	10,900	11	20,348
January	7	13,017	10	22,508
December	8	15,083	11	22,837
November	8	13,405	8	19,108
October	11	24,365	6	8,893
September	8	11,528	7	13,086
August	7	12,477	7	13,152
July	13	22,553	11	25,670
June, 1933	9	22,192	6	12,222

### Key West

(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships		No. ships	
	ships	Net tonnage	ships	Net tonnage
March, 1934	24	38,052	23	37,658
February	23	36,476	24	36,523
January	25	39,966	22	38,764
December	22	38,764	22	38,764
November	23	33,556	22	31,330
October	22	37,180	23	39,878
September	22	38,648	23	38,659
August	18	33,210	18	32,716
July	24	39,400	22	37,180
June, 1933	27	40,569	27	42,160

### Mobile

(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships		No. ships	
	ships	Net tonnage	ships	Net tonnage
March, 1934	115	275,629	129	309,123
February	115	268,707	112	251,232
January	118	282,972	125	298,570
December	123	279,151	109	253,209
November	114	260,753	114	249,344
October	118	247,474	124	297,436
September	116	265,547	113	266,183
August	100	223,940	102	203,716
July	130	221,610	114	236,622
June, 1933	97	206,147	91	183,736

### Seattle

(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships		No. ships	
	ships	Net tonnage	ships	Net tonnage
March, 1934	52	203,796	51	205,371
February	54	226,118	62	251,281
January	52	221,000	55	230,995
December	54	225,842	60	246,987
November	54	222,914	51	211,474
October	58	253,865	59	254,959
September	35	154,233	40	174,263
August	40	183,028	41	182,626
July	40	168,770	40	169,815
June, 1933	36	160,127	36	157,887

### New Orleans

(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships		No. ships	
	ships	Net tonnage	ships	Net tonnage
March, 1934	155	422,855	166	449,394
February	151	446,952	145	414,515
January	146	423,759	145	414,918
December	139	398,112	152	443,496
November	148	439,238	152	430,631
October	154	467,332	169	506,324
September	154	443,981	168	470,271
August	144	420,570	151	429,183
July	169	468,111	184	493,775
June	147	422,280	146	422,235
May, 1933	150	444,982	151	434,952

### Charleston

(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships		No. ships	
	ships	Net tonnage	ships	Net tonnage
March, 1934	44	131,839	37	109,492
February	40	112,884	39	109,597
January	23	60,138	25	66,827
December	35	111,420	32	97,473
November	43	123,628	39	109,151
October	34	97,585	33	91,526
September	42	116,048	32	83,944
August	33	92,987	27	76,881
July	35	102,115	29	82,742
June, 1933	32	84,362	28	75,023

### Galveston

(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships		No. ships	
	ships	Net tonnage	ships	Net tonnage
March, 1934	29	54,379	94	264,101
February	22	41,945	77	236,784
January	23	43,664	86	252,595
December	19	40,552	90	279,537
November	16	37,590	85	262,800
October	21	44,388	104	304,402
September	10	19,602	94	277,642
August	19	44,012	69	205,442
July	22	33,718	77	213,821
June	27	56,231	79	227,842
May, 1933	27	58,632	86	261,124

### Los Angeles

(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No.	Net	No.	Net
	ships	tonnage	ships	tonnage
December, 1933....	169	639,444	164	629,462
November .....	143	539,624	162	592,724
October .....	160	623,572	152	592,212
September .....	154	562,597	152	561,294
August .....	156	578,255	156	605,610
July .....	165	641,116	152	601,731
June .....	189	670,782	171	671,704
May .....	190	600,184	185	630,905
April .....	178	625,508	190	614,741
March, 1933 .....	152	550,205	167	599,191



# Latest Data on New Marine Work

Information on New Ships Ordered—Building and Repair Contracts Let—Shipping Board Loans Made, Authorized or Pending

IN THE March issue of MARINE REVIEW it was reported that the American South African Line Inc. had plans under way by the New York naval architects Gibbs & Cox Inc. for building a new vessel for its New York-South African service.

Plans and specifications for the new vessel have progressed satisfactorily but no authoritative particulars are available concerning the characteristics of the new vessel nor can anything be said at this time as to the intentions of the owner in respect to taking bids or other matters of policy.

It has been assumed that the new vessel will be somewhat similar if not a sister ship of the twin screw passenger and cargo motorship CITY OF NEW YORK completed for the same owner by the Sun Shipbuilding & Dry Dock Co., Jan. 17, 1930.

## Resume Work on No. 534

Work has now definitely been resumed on the Cunard superliner No. 534 at the shipyard of John Brown on the Clyde. It is anticipated that launching will take place in November.

It is expected that some time will elapse before a second new ship is ordered. It is obvious that in planning a new ship full advantage will be taken of the progress in naval architecture and marine engineering since the design for No. 534 was decided upon. But that a second liner will be built as soon as conditions warrant is assured.

Over 2000 men, it is expected will be employed in the building of No. 534 within a period of two months. Eventually 6000 men will find employment in connection with this great project.

## Bids on Lighthouse Tender

Bids were received on March 15 by the superintendent of lighthouses, Portland, Oreg, for the construction of a twin screw, diesel propelled, lighthouse tender to be known as the RHODODENDRON. This vessel is to be of all steel construction and is to be powered with two six-cylinder diesel engines each developing 120 horsepower, to give the vessel a speed of 11 knots. The overall length is to be 80 feet, 6½ inches; the beam molded, will be 19 feet and the depth at side, 5 feet,

11 inches.

The lowest bid received for building the hull was from the Lake Washington Shipyards, Houghton, Wash., in the amount of \$50,750 and 180 days. The lowest bid for the diesel engines was from the Atlas Imperial Diesel Engine Co., Oakland, Calif., at \$13,850 for each engine. As this is written no announcement had been made of the award of contract.

## Steering Gears Ordered

Orders have been received by the Sperry Gyroscope Co. Inc., Brooklyn, N. Y., for thirteen electro-mechanical steering systems for the 165-foot patrol boats and harbor cutters now under construction for the United States coast guard in Seattle, Manitowoc, Wis., Point Pleasant, W. Va., Charleston, S. C., navy yard and Portsmouth N. H. navy yard.

Selection of this type of steering gear was based largely upon the excellent performance given by this equipment in the nine 165-foot patrol boats of the THETIS class, which have been in service for some time. Upon completion of this new building program there will be a total of 22 coast guard vessels fitted with this improved type of steering equipment.

## Contract to Westinghouse

Westinghouse Electric & Mfg. Co. has been awarded a contract by the United States engineers at a sum of over \$500,000 for electrical equipment to be installed at the Fort Peck dam on the Missouri river, Montana.

The award includes substation equipment consisting mainly of high tension switching equipment; four 16,667 k.v.a. transformers and three 1000 k.v.a. transformers, two 20,000 k.v.a. synchronous condensers, a 60-ton crane, and other miscellaneous equipment.

When installed this equipment will be used for supplying power for building the Fort Peck dam. Four electrically operated pipe line dredges will utilize much of the power generated. Sufficient capacity, however, will be provided for all other needs.

The Fort Peck dam will be the world's largest earth filled dam. It will form a reservoir of the Missouri

river, about 16 miles wide and 180 miles long. The shore line of this reservoir, or lake, will be more than 2000 miles long. The dam will be 9000 feet long and 230 feet high, 100 feet wide at the top, where a roadway will be built, and 2658 feet thick at its base.

This project which is one of the greatest developments in the United States is to serve a four-fold purpose. It will provide a 9-foot channel in the Missouri river the year around; it will aid flood control; it will provide unemployment relief; and it will provide a site for power development.

## To Use Galvanized Sheets

Something new in shipbuilding is to be tried out in the building of the seven 327-foot, 2000-ton, ocean cruising cutters for the United States coast guard. Heavy galvanized steel plates are to be used in the hull construction of these vessels with the purpose in mind of reducing insipient corrosion. The galvanized plates will be used primarily for deck plating. Though light galvanized steel plates have been used for a number of years for superstructure bulkheads, partitions, etc., this is the first time galvanized steel is being used in hull construction.

Of these seven vessels, contract for four has been awarded to the navy yard, Philadelphia, contract for two to the navy yard, Brooklyn, N. Y., and contract for one to the navy yard at Charleston, S. C. Plate requirements for the seven vessels are 3133 tons of galvanized plates and sheets and 1907 tons of black plates and sheets and 1075 tons of galvanized shapes and 1377 tons of black shapes.

## Quarantine Cutters

It is reported that the Warwick Machine Co., Newport News, Va., has received a contract from the United States public health service for the construction of two steel hull diesel drive, 70-foot quarantine cutters. This award was made under bids received Feb. 10 at Fortress Monroe, Va., and at Pacific coast ports, for building from one to three such vessels. The Warwick Machine Co. bid for the first vessel was \$56,533 and for the second \$53,233. Delivery was promised for November, 1934 and January 1935.



## United States Engineers, Bids on Marine Work

Bids will be received until May 7 by the office of the division engineer United States engineers, Kansas City, Mo., for furnishing auxiliary generator sets for the Fort Peck dredges.

The United States engineer office, Memphis, Tenn., opened bids April 18 for furnishing one 275-horsepower locomotive type boiler.

Bids were received by the United States engineer office, Vicksburg, Miss., on April 12, for the construction and delivery afloat at Vicksburg, Miss., of two 120 x 30 x 7 feet steel oil barges.

The bids received and amounts are as follows:

The Dravo Contracting Co., Neville Island Station, Pittsburgh, \$33,300; Chicago Bridge and Iron Co., 37 West Van Buren street, Chicago, \$51,899; Jones & Laughlin Steel Corp., Pittsburgh, \$39,951; Nashville Bridge Co., Nashville, Tenn., \$37,690; McClintic Marshall Corp., Bethlehem, Pa., \$35,630; Alabama Dry Dock & Shipbuilding Co., Mobile, Ala., \$46,544; and Midland Barge Co., Midland, Pa., \$39,858.

All bids were rejected. It is assumed that new bids will be requested.

The bid of the Marine Iron & Shipbuilding Co., Duluth, Minn., of \$7800 for building two 40-foot steel launches for the United States engineer office, Duluth, Minn., was recommended for acceptance and it is assumed that the contract was awarded to this company. Three bids were received, the highest being \$17,880.

The United States engineer office, Memphis, Tenn., on April 17 opened bids for the construction of two 31-foot steel hull motorboats. The same office on the same day also opened bids for the construction of two 30-foot wooden work boats.

The Tennessee Valley authority, Knoxville, Tenn., has awarded a contract at \$61,600 to the Ingalls Iron

Works, Birmingham, Ala. for the construction of four steel barges 90 x 40 x 6½ feet. These barges are to be used in connection with the building of Wheeler dam.

Because no funds have been allocated by the public works administration, the project of developing the first of a chain of seadromes has been dropped for the time being.

## Tank Barge Ordered

Newtown Creek Towing Co., 17 Battery place, New York, has awarded to United Drydocks, Inc., contract for the construction of one 13,000 barrel truss-weld tank barge 208 foot long, by 30 foot beam, by 12 foot deep, for transport of gasoline in harbor, sound and limited coastwise service, as well as on the New York State Barge canal, under classification by the American Bureau of Shipping. The barge was designed by W. S. MacDonald, naval architect, of 90 West street, New York.

## New Vessels for Mexico

Authorization to negotiate with American, British, French, Spanish and German shipyards for the construction and delivery of five passenger and freight steamers for service in the Gulf of Mexico has been granted the Tampico Stevedores union, which operates the steamers MEXICO, COAHUILA, ISAURO ALFARO and ALIJADORES in the Gulf, by the ministry of communications and public works. The union has found that these four vessels are insufficient to meet Gulf passenger and cargo requirements. Shipyards with which the union will negotiate will be invited to send representatives.

The vessels which the union proposes to acquire will be of one type and suitable for Mexican Gulf of Mexico coastwise service. Each must have a minimum cargo displacement of 1000 tons and accommodations for 60 first class and 75 second class passengers, and be powered with machinery adequate to assure a minimum speed of 15 knots.

## New Tanker Construction is Now Anticipated

Considering the fact that but few tankers have been laid down in American shipyards in recent years and the further fact that the life of a tanker, depending on her service, is much more limited than that of an ordinary cargo ship, new tanker construction cannot be deferred much longer.

As an indication of a trend in this direction mention might be made of a rumor that an attempt is being made by a number of the oil companies and shipbuilders to work out a program for the construction of 40 tankers of high speed which could be used in efficiently serving the navy at sea should the need arise. If this program materializes production costs could be equalized with the cost of building abroad if the subsidy policy proposed by the administration is enacted into law by congress.

Whether the scheme could be worked out on the basis of a speed of 18 knots is doubtful to say the least. Such a speed would mean much greater first cost as well as higher operating cost throughout the service life of the vessel. According to past experience the oil companies do not need much higher speeds than is now customary, that is, in the vicinity of 11 knots. The high speed mentioned would, therefore, seem to be a naval requirement.

In pointing out the need for replacement of tankers within the next year or two R. L. Burke, vice president, of the Sun Shipbuilding & Dry Dock Co., called attention to the fact that most of the tankers now in operation were built between 1914 and 1920. He is of the opinion that it would be practicable to step up to a speed of 16 knots and that the 18-knot speed, mentioned in connection with the program referred to above, would be possible if it is finally considered necessary.

It is understood that the navy department recently awarded a contract to The American Rolling Mill Co., Middletown, O., for 400,000 pounds of stainless steel sheets. This is one of the largest orders for stainless steel sheets ever placed.

## Bunker Prices

### At New York

	Coal F. o. b. per ton	Fuel oil alongside per barrel	Diesel engine oil alongside per gallon
April 19, 1934...	5.63@5.48	1.35	4.79
Mar. 19.....	5.35@5.20	1.25	4.79
Feb. 19.....	5.35@5.20	1.25	4.79
Jan. 18.....	5.35@5.20	1.25	4.79
Dec. 18.....	5.35@5.20	1.25	4.79
Nov. 18.....	5.35@5.20	1.15	4.70½
Oct. 18.....	5.00@5.75	1.15	4.70½
Sept. 18.....	4.45@4.75	1.15	4.70
Aug. 18.....	4.45@4.75	.90	4.32
July 18.....	4.30@4.60	.90	4.32
June 18, 1933...	4.30@4.60	.80	4.08

### At Philadelphia

	Coal trim in bunk per ton	Fuel oil alongside per barrel	Diesel engine oil alongside per gallon
April 19, 1934...	4.93@4.78	1.35	4.76
Mar. 19.....	4.65@4.50	1.25	4.76
Feb. 19.....	4.65@4.50	1.25	4.76
Jan. 18.....	4.65@4.50	1.25	4.76
Dec. 18.....	4.65@4.50	1.15	4.76
Nov. 18.....	4.65@4.50	1.15	4.76
Oct. 18.....	5.00@5.75	1.15	4.76
Sept. 18.....	4.45@4.75	1.15	4.88
Aug. 18.....	4.45@4.75	.90	4.28
July 18.....	4.30@4.60	.90	4.28½
June 18, 1933...	4.30@4.60	.80	4.04

### Other Ports

April 19, 1934	
Boston, coal, per ton.	\$ 8.00
Boston, oil, f. a. s. per barrel.....	\$1.19
Hampton Roads, coal, per ton, f.o.b. piers.....	\$5.00
Cardiff, coal, per ton.....	13s 3d
London, coal, per ton.....	—s —d
Antwerp, coal, per ton.....	16s 0d
Antwerp, Fuel oil, per ton.....	67s 6d
Antwerp, Diesel oil, per ton.....	82s 6d
British ports, Fuel oil.....	87s 6d
British ports, Diesel oil.....	102s 6d

Note: Figures given for coal at New York and Philadelphia are for Classes A and B according to the Code; Class C is slightly less.



## Ask Bids on New Work for U.S. Engineers

The United States engineer office, Vicksburg, Miss., on April 19, issued a notice that plans and specifications will be ready shortly for asking bids on the construction of one twin-screw diesel-drive river towboat, complete in all details. The length molded of this vessel is to be 176 feet; the breadth of hull molded will be 38 feet, and the depth molded will be 8 feet 6 inches. The hull is to be of steel construction.

The United States engineer office, Customhouse, St. Louis, will receive bids until 2 p.m., May 1, for the construction of three towboats. Delivery is to be made afloat to the United States engineer depot, St. Louis.

These towboats are to be of steel hull construction 54 feet in length, 13 feet 6 inches in beam, and 5 feet 7 inches in depth. The hull is to be transversely framed throughout and stiffened longitudinally. Bottom, side and deck plating, with certain exceptions, is to be of  $\frac{3}{16}$ -inch steel. The engine, which is to be direct connected to the propeller, is to be either two or four cycle, solid injection, heavy duty marine, full or semidiesel type, with not less than five cylinders. It shall be an air starting, direct reversing engine, developing not less than 150 brake horsepower at 325 to 425 revolutions per minute.

The United States engineer office, Customhouse, St. Louis, will also take bids on May 1 for the construction of five 24-foot metal hull motor boats to be delivered afloat at St. Louis.

## Reboiling Mine Planter

Early in April the quartermaster's office of the United States war department at Governor's Island, New York, received the following bids for installing new boilers and general repairs and conversion of the United States army mine planter GENERAL E. O. C. ORD:

From the Old Dominion Marine Railway, Norfolk, Va., \$78,983 and 83 days; Todd Shipyards Corp., New

York, \$79,777 and 77 days; Federal Shipbuilding & Dry Dock Co., Kearny, N. J., \$111,392 and 85 days; Maryland Dry Dock Co., Baltimore, Md., \$113,302 and 85 days; United Dry Docks Inc., New York, \$120,475, and 80 days; and Ira S. Bushey & Sons, Brooklyn, N. Y., \$131,528 and 85 days.

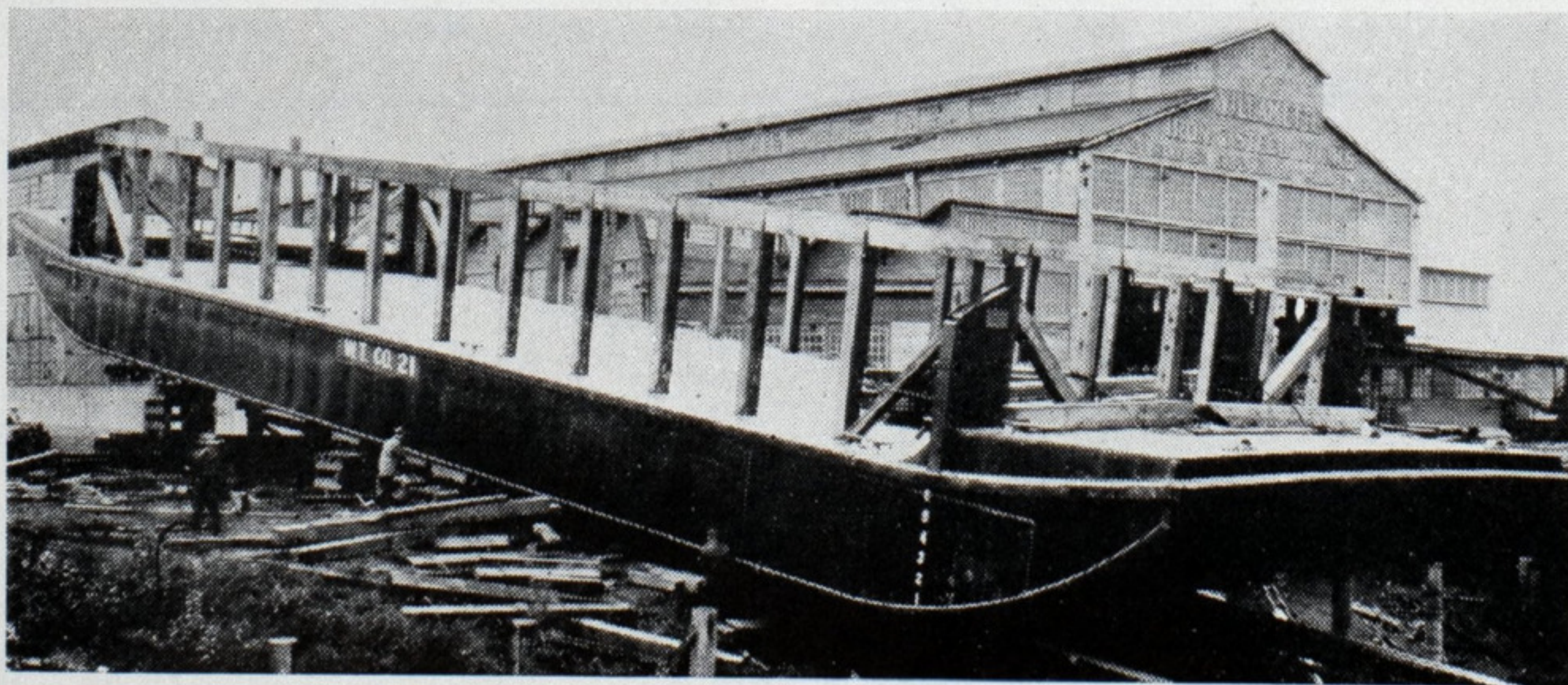
The Sun Shipbuilding & Dry Dock Co., Chester, Pa., was awarded a contract by the Dawnic Steamship Co., New York, for repairs to the steamship PETER KERR at a bid of \$11,165 and a time of 7 days.

The Tietjen & Lang Dry Dock Co., Hoboken, N. J., a subsidiary of Todd Shipyards Corp., has completed repairs to the Savannah line steamship CITY OF MONTGOMERY which had suffered damage by fire to the extent of approximately \$50,000.

## Largest All-Welded Barges Built on Pacific Coast

The construction of four steel barges on the Pacific Coast has attracted widespread attention in that district among ship and boat builders. The reason is that they are the largest all-welded floating equipment built in that part of the country. Each barge is 134 feet overall length, 36 feet overall width, with a depth of 7 feet 6 inches. The draft when loaded to capacity is 6 feet and the carrying capacity is 650 net tons. Each barge weighs approximately 110 tons.

Steel for these units was supplied by the Pacific Coast Steel Corp. and consisted of about 300 tons of sheared plates, 100 tons of bars and bar sized angles, 15 tons of universal mill plates, and 55 tons of standard structural shapes. The barges were built by the Commercial Iron Works, Portland, Oreg., for the Western Transportation Co., a subsidiary of the Crown Willamette Paper Co. They are to be used on the Columbia and Willamette rivers for transporting log fuel and paper chips between the paper company's various plants.



One of four barges of welded steel construction built on the Pacific Coast for the Western Transportation Co.

## Northwest Shipyards Busy on Smaller Vessels

Contracts for five wood vessels for the United States biological survey have been awarded to Puget sound yards by the department of agriculture, at a total cost approximating \$150,000. The largest job was taken by the Winslow Marine Railway & Shipbuilding Co., Winslow, Wash., at whose yard the 114-foot motorship BROWN BEAR will be built on a bid of \$65,899. This vessel will be the mother ship for the survey's Alaska fleet. Heavy Douglas fir will be used with a sheathing of iron bark. The vessel will have two full decks and a cargo capacity of 100 tons. The main power plant will consist of two 200-horsepower 6-cylinder 4-cycle, direct reversing diesel engines. There will be accommodations for a crew of six and five staterooms for officers and bureau officials.

Contract for the engines for the BROWN BEAR was awarded some time ago to the Washington Iron Works, Seattle, which will also furnish a single 90 horsepower diesel engine for the motorship GRIZZLY BEAR, 58 feet in length, which will be built by Schertzer Boat & Machine Works, Seattle. Three 50-foot launches are being constructed by the Long Boat Works, Olympia, Wash. These units will be semi-tunnel type, shallow draft and equipped with high speed, 150 horsepower each Red Wing engines.

Two 45-foot wood cruisers, equipped with 35 horsepower Fairbanks-Morse diesel engines have been launched at the yards of the Fremont Boat Market, Seattle.

For the Northwest Herring Co., the Western Boatbuilding Co., Tacoma, Wash., has launched the 73-foot wood fishing vessel JEANETTE, in which a 135-horsepower Washington diesel engine has been installed. This craft is designed for the peculiar requirements of herring fishing.

At the plant of the Lake Union Dry Dock & Machine Works, Seattle, the keels have been laid for two of the three steel coast guard cutters, the total contract being in excess of \$700,000. These vessels will have Winton diesel engines.

Officials of the Berg Shipbuilding Co., Seattle, are awaiting word from Washington with reference to the contract for the lighthouse tender HOLLYHOCK on which the local plant was low bidder but in excess of the appropriation.

The smaller Puget sound ports have requested the government to build a \$125,000 hydraulic pipeline dredge for service in local waters. The United States engineers held a hearing at Seattle in April to survey the needs of the district.



# The Hydro Electric System for Steering Gears

**I**NTRODUCTION of electric and diesel drive for all classes of vessels resulted in the almost universal application of electric motor drive for deck auxiliary machinery. Modern steam vessels are now also widely using electric motor drives for the deck auxiliaries.

Electric motor direct drive for the windlass, capstans and winches is now firmly established in service as entirely satisfactory. It is generally conceded, however, that except in smaller sizes, in the case of the steering gear, the hydro electric system is to be preferred. In this type of steering gear the motor is direct connected to a variable stroke pump running constantly in one direction. The motor, therefore, is not subject to severe usage as would be the case where the motor is direct connected to the steering gear and constantly stopped and reversed.

## Two Methods of Control

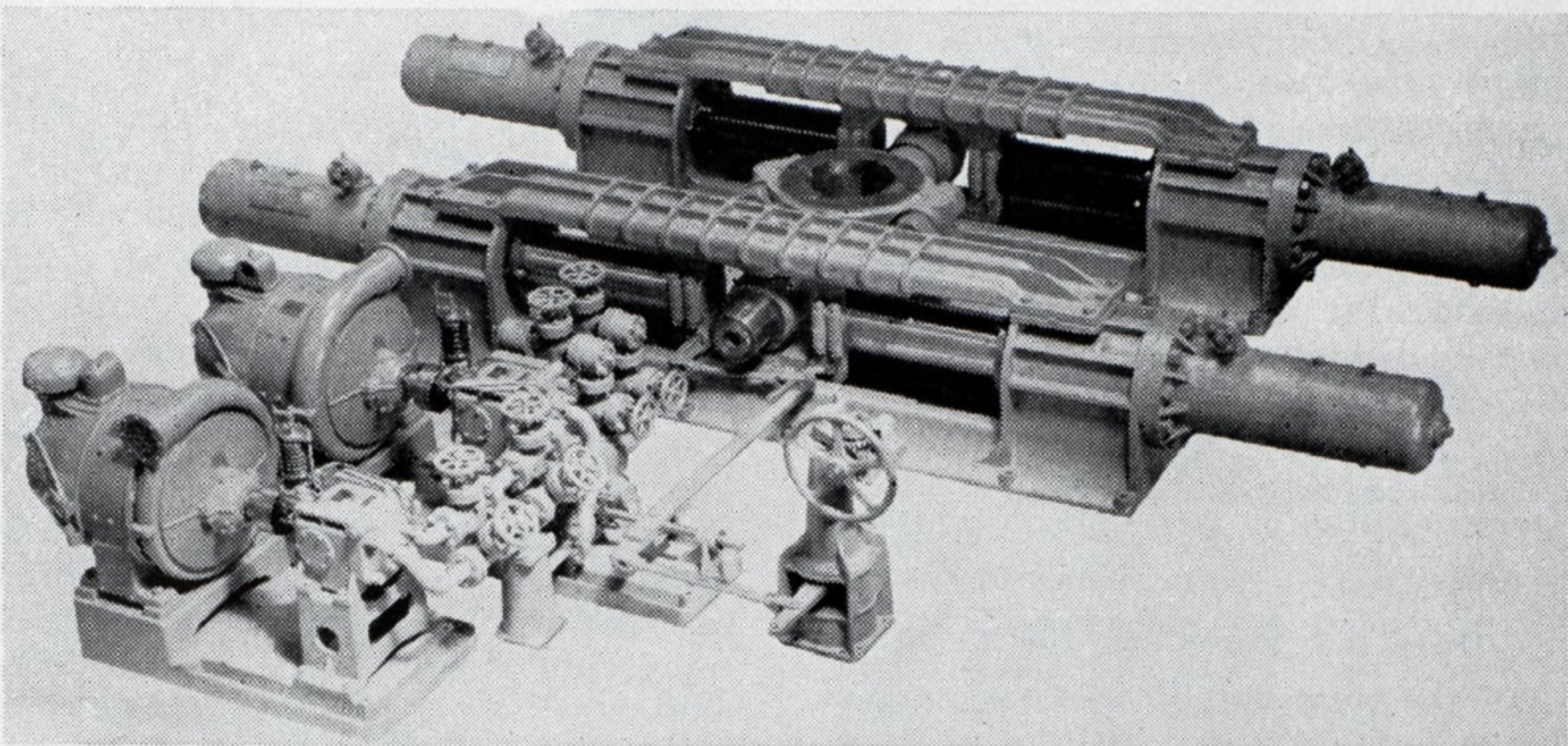
Two methods are used for controlling the hydro electric steering gear. One is by reversing the pump and the other is by having control valves for reversing the direction of oil to the plungers. In the latter case the direction of rotation of the pump is not reversed. This method has several advantages, such as quick response to helm, very little back lash, and it is

impossible to overload or stall the motor because the pump is fitted with a stroke control which is connected to its pressure side.

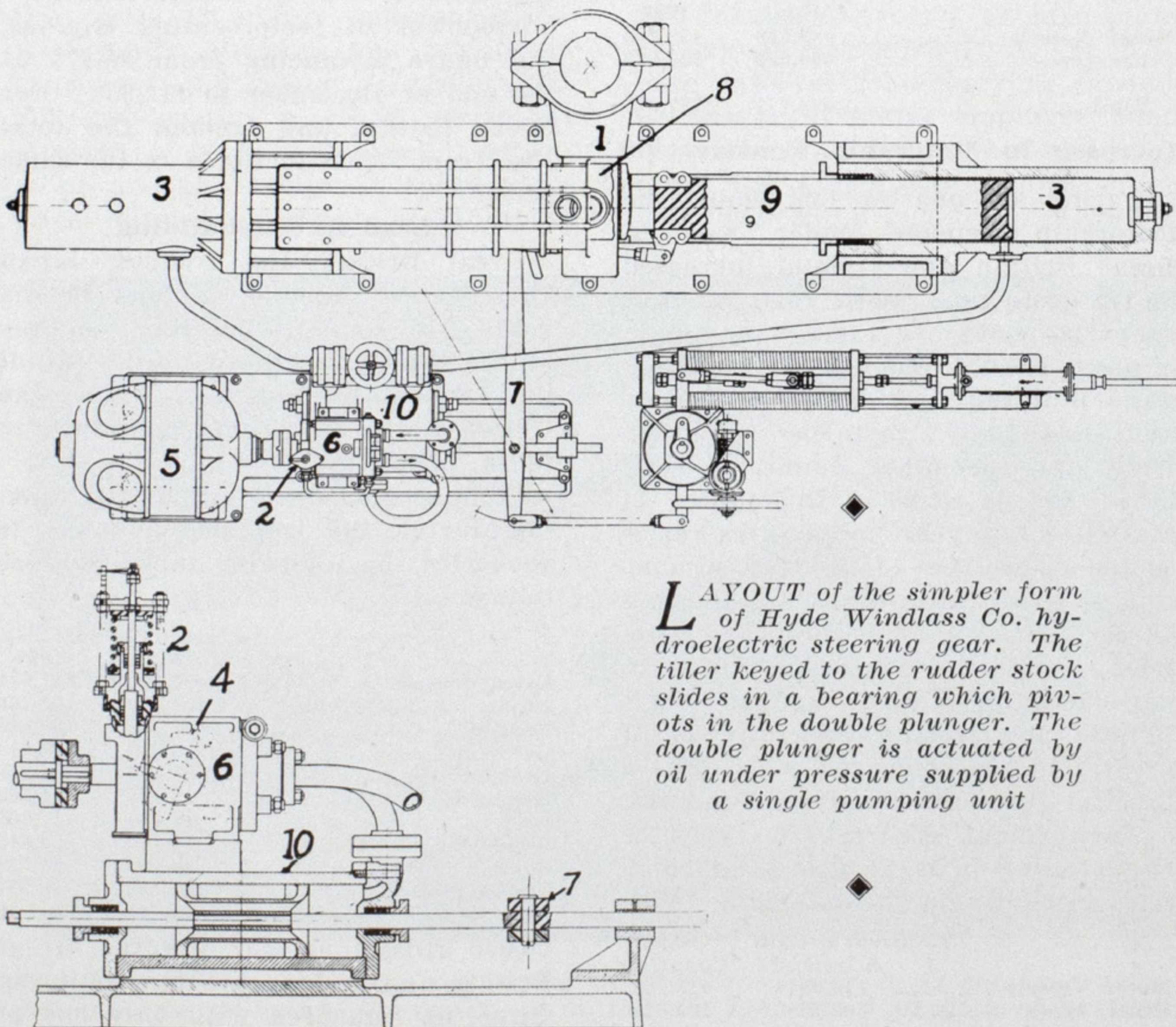
Many different arrangements of the hydro electric steering gear can be made. It may be connected to the rudder crosshead by means of connecting links or with a single or double tiller on the rudder stock. One of the accompanying illustrations shows the type of hydro electric steering gear designed and constructed by the Hyde Windlass Co., Bath, Me., for the four new Panama Mail liners (Grace line) SANTA ROSA, SANTA PAULA, SANTA LU-

CIA and SANTA ELENA, and also on the Grace liner SANTA CLARA. This gear is of the four cylinder type with double crosshead and dual pumping unit. A somewhat different four cylinder type of hydro electric steering gear was supplied by the same company for the Panama Pacific turbine electric liners CALIFORNIA, VIRGINIA and PENNSYLVANIA.

The simpler form of hydro electric steering gear, developed by the same company, has a tiller arm sliding in the double plunger and is equipped with a single pumping unit. Hydro electric steering gears of this type were installed on the ocean going yachts CORSAIR, VANDA, HI-ESMARO and SAVARONA; on the tankers J. W. VANDYKE, GULFCREST and GULFPRIDE; on the steamships BIENVILLE, and DIXIE; on the diesel electric vessels TWIN PORTS, TWIN CITIES and the diesel electric tanker, HAWAIIAN STANDARD;



*Hydroelectric steering gear with double crosshead and dual pumping unit*



**L**AYOUT of the simpler form of Hyde Windlass Co. hydroelectric steering gear. The tiller keyed to the rudder stock slides in a bearing which pivots in the double plunger. The double plunger is actuated by oil under pressure supplied by a single pumping unit

also on the United States coast guard vessels TAMPA, MODOC, MOJAVE, and HAIDA.

The same type of hydro electric steering gear, except that dual pumping units with a set of ten valves so that either pumping unit can be used, was installed on the diesel tankers E. T. BEDFORD, J. A. MOFFETT Jr., and on the steam turbine geared tankers G. HARRISON SMITH and W. S. FARISH; on the coastwise, turbine geared liners, SAINT JOHN and ACADIA; and on the United States transport GRANT.

The simpler form of hydro electric steering gear of Hyde Windlass Co. design may be described as follows, referring to the accompanying diagram:

The tiller (1) is keyed to the rudder stock and slides in the center bearing (8). This in turn pivots in the double plunger (9). The plunger moves in the cylinders (3) which are closed at the outer ends. The other ends are fitted with stuffing boxes packed with high pressure hydraulic packing. The pumping unit consists of an electric motor (5) coupled direct to a variable stroke pump (6) and drives this pump at constant speed. Pipes connect the pumping unit with the cylinder.

*(Continued on Page 40)*



# World Shipbuilding Increase Is Over 40 Per Cent

**A** GAIN of over 40 per cent in the volume of merchant shipbuilding under way throughout the world is shown by the returns of Lloyd's Register of Shipping for the quarter ended March 31. More than a million gross tons of merchant vessels are now in hand, as compared with 757,000 tons in the previous quarter. At this time last year 740,000 tons were building.

The greatest gain is reported for Great Britain and Ireland, which now have under way 150,000 gross tons more than at the beginning of this year. For Germany an increase of 60,000 tons is reported, for Italy 36,000 tons, and for Denmark 26,000 tons, and for the United States, an increase of 15,000 tons.

The comparison of the volume of tonnage in hand in the last two quarters is given in the following table, showing the gross tons of merchant vessels being built:

	March 31, 1934	Dec. 31, 1933
Great Britain & Ireland....	481,440	331,541
United States .....	27,334	12,373
Other countries .....	570,397	413,363
World total .....	1,079,171	757,277

## Only 2.5 Per Cent for U. S.

Of the total output, 44.6 per cent is being built by Great Britain and Ireland, 2.5 per cent by the United States, and 52.9 per cent by the other countries combined. At the beginning of 1933, Great Britain and Ireland were building only 29.5 per cent of the world output, as compared with 7.7 per cent for the United States, and 62.8 per cent for the other countries.

Of the present total of 1,079,171 gross tons, representing all merchant vessels of 100 gross tons and upwards being constructed in all countries except Russia, 807,820 tons are being built under the supervision of Lloyd's

New work begun during the last quarter throughout the world was largely in excess of that launched during the same period, the replacements being about 375,000 gross tons more than the tonnage sent down the ways towards completion.

The comparison between new work and tonnage launched in the last two quarters is given in the following table, representing gross tons:

New Work		
	March 31, 1934	Dec. 31, 1933
Great Britain & Ireland....	202,612	74,581
Other countries .....	256,323	66,840
World total .....	458,935	141,421
Launchings		
	March 31, 1934	Dec. 31, 1933
Great Britain & Ireland....	34,839	65,174
Other countries .....	50,528	105,769
World total .....	85,367	170,943

Construction of steam and motor tankers of 1000 gross tons each, and upwards, is now more than double what it was at the beginning of this year.

## Tanker Construction Compared

Tanker construction for the last two quarters is shown in the following table of gross tonnage:

	March 31, 1934	Dec. 31, 1933
Great Britain & Ireland....	82,526	31,026
Sweden .....	32,100	41,100
Germany .....	24,900	.....
Holland .....	23,570	.....
Japan .....	19,200	19,200
Spain .....	18,212	18,212
Italy .....	17,900	.....
Denmark .....	16,070	8,070
United States .....	14,100	.....

World total ..... 248,578 117,608  
Of the 248,578 gross tons now building, 217,718 tons are motor tankers.

Motorized vessels continue to be built in greater volume than all other types of merchant tonnage combined. During the quarter just ended the total of motorship construction under way showed a gain over the previous quarter of 170,000 gross tons, while for other types of vessels the gain was about 150,000 tons. As a result, 54.6 per cent of all tonnage now under way represents motorized vessels, as against 45.4 per cent for other types. Work in hand of the various types during the last two quarters is shown in the following tonnage table:

	March 31, 1934	Dec. 31, 1933
Motor Vessels .....	588,589	418,254
Other types .....	490,582	339,023
Total .....	1,079,171	757,277

## Increase in Motorship Construction

During the quarter just ended the motorship tonnage under way in Great Britain and Ireland increased 63,000 gross tons, while for the other countries combined there was a gain of about 107,000 tons. Of the total tonnage building now in Great Britain and Ireland, 36.5 is to be motorized, while for the other countries combined, 69.1 is to be of this type. At this time last year, motorships represented 24 per cent of the total production of Great Britain and Ireland and 72 per cent of that of the other countries combined. The motorized tonnage building a year ago in Great Britain and Ireland was only 58,981 gross tons, as compared with 351,172 tons for the other countries combined.

The present contrast in types of shipbuilding in these groups of countries is shown in the following table,

	Great Britain & Ireland	Other Countries
Motor Vessels .....	175,687	412,902
Other types .....	305,753	184,829
Total .....	481,440	597,731

All the maritime countries except Sweden, which had a decline of 17,000 gross tons, showed increases in motorship construction during the quarter just ended, as shown in the following gross tonnage table, covering the last two quarters:

	March 31, 1934	Dec. 31, 1933
Great Britain & Ireland....	175,687	112,276
Japan .....	119,590	95,660
Holland .....	50,880	40,105
Germany .....	47,530	21,510
Italy .....	46,700	11,200
Sweden .....	45,800	63,100
Denmark .....	44,390	21,997
Spain .....	29,220	28,952
United States .....	5,919	503

## Types of Motive Power

For oil engines, the returns from all countries show that at the end of the March quarter the aggregate indicated horsepower of those in hand was 668,219, as against 621,216 at the end of December last. During the last quarter Great Britain and Ireland's total advanced from 108,101 to 174,132. For Japan there was a slight decline, the figures dropping from 123,510 to 122,760. Holland's aggregate also decreased, going from 119,725 to 92,540; and Germany's figure fell from 80,465 to 73,729. For Sweden there was a reduction from 61,045 to 50,492; but Denmark's total advanced from 34,200 to 42,750, and that of the United States from 7210 to 11,626.

The total shaft horsepower of steam turbines building or being installed at the end of the March quarter was 513,848, as compared with 466,082 for all countries at the end of December. For Great Britain and Ireland, the total increased from 257,755 to 310,835; and for France, from 172,000 to 186,300.

There was also an increase during the quarter in the total indicated horsepower of reciprocating engines, the figure advancing from 85,873 at the end of December to 112,958. For Great Britain and Ireland the total rose from 72,623 to 75,758 in the same period.

## Lead in Shipbuilding

Great Britain and Ireland, Japan and France continue to lead in the volume of tonnage building, as they did, in the order named, at the end of the December quarter, while the United States dropped from ninth to tenth place.

Comparisons of the output and ranking during the last two quarters is shown in the following table of gross tonnage:

	March 31, 1934	Dec. 31, 1933
Great Britain & Ireland....	481,440	331,541
Japan .....	122,590	106,760
France .....	103,188	90,656
Germany .....	82,650	22,510
Holland .....	51,315	40,540
Denmark .....	51,140	24,663
Italy .....	47,670	11,200
Sweden .....	47,340	64,640
Spain .....	34,480	35,724
United States .....	27,334	12,373

Of large merchant vessels, those of 20,000 gross tons and upwards, Great Britain and Ireland are now building three, as compared with only one at the end of the previous quarter.



# Welded Steel Engine Bed on New High Speed Train

**T**HE design and construction of engine foundations is a matter of vital importance in ship construction. How this problem is met in other applications is therefore of great interest.

On the Chicago, Burlington & Quincy railroad's new high speed streamlined passenger train, the "Zephyr," the engine bed, as shown in the accompanying illustration, is of welded construction, fabricated from Lukens cromansil steel, a recently developed, high strength steel. This application is believed to be the first instance of the use of a welded steel engine bed on a motive power unit employed in main line railway service in America.

The welded steel underframe supports a load of approximately 60,000 pounds, consisting of a 600 horsepower, Winton diesel engine and generator which power the train, and the forward half of the power car. This 30-ton dead load imposes severe impact stresses on its supporting bed under the operating conditions encountered in service. The stresses are of a fatigue nature, since they are repeated many times per mile.

## Analysis Of Loads Indeterminate

Because of the infinite variety of types of load to which the structure is subjected in service, analysis of the loads is highly indeterminate. Rail joints, switches and crossovers cause vertical impact. Acceleration and deceleration result in horizontal stresses of variable extent. Movement around curves at speed produces lateral stresses. Combinations

of the various forms of stress can occur simultaneously. The requirements of service are further complicated by the necessity of minimizing weight. Naturally, the working stresses are high.

The design of the engine bed was developed by Lukenweld, Inc., division of Lukens Steel Co., Coatesville, Pa., in co-operation with the Edward G. Budd Mfg. Co., builder of the "Zephyr," and the railroad company. In developing the design, particular attention was given to the elimination of rectilinear elements which would involve undesirable concentrations of stress. Angles, channels and "picture-frame" correlations were avoided because they would result in severe changes in contour which, in turn, would be incipient points of failure.

## Size Of Engine Bed

It will be noted that the engine bed design utilizes extremely moderate changes in contour, not only to avoid concentrations of stress but also to introduce a high degree of redundancy. The mutual interaction of adjacent members is an important element in the functioning of the structure as a single unit rather than as a connected assembly of individual members.

The engine bed is 25 feet 3½ inches long, 8 feet 8 inches wide, and fabricated from 5/16 inch plates of Lukens cromansil steel. It has a high ratio of load-carrying capacity to weight of metal employed, since it weighs only 6060 pounds and supports the 60,000-pound load of engine, generator and forward half of

the power car. It forms the bed of the front half of the first car of the train, and is joined at the rear to the stainless steel structure forming the balance of the car.

In addition to the engine bed, the crankcase of the Winton diesel engine is also of welded construction, fabricated by Lukenweld, Inc., from cromansil steel. The engine, developing 600 horsepower, is of two-cycle type with eight cylinders, and is direct connected to the generator. The complete engine, without generator and auxiliaries, weighs about 22 pounds per horsepower, which low ratio of weight to horsepower is largely the result of efficient design and fabrication in welded steel construction.

## Ship Repair Contracts

Recent ship repair contracts have been awarded as follows:

C. H. Sprague & Son Inc., Boston has awarded a contract to the Bethlehem Shipbuilding Corp. for repairs to the S. S. HAMPDEN, on a bid of \$13,421, to be completed in seven days. The same company also awarded a contract to the Todd Dry Dock, Engineering & Repair Co. for repairs to the S. S. COASTWISE on a bid of \$10,728, to be completed in eight days.

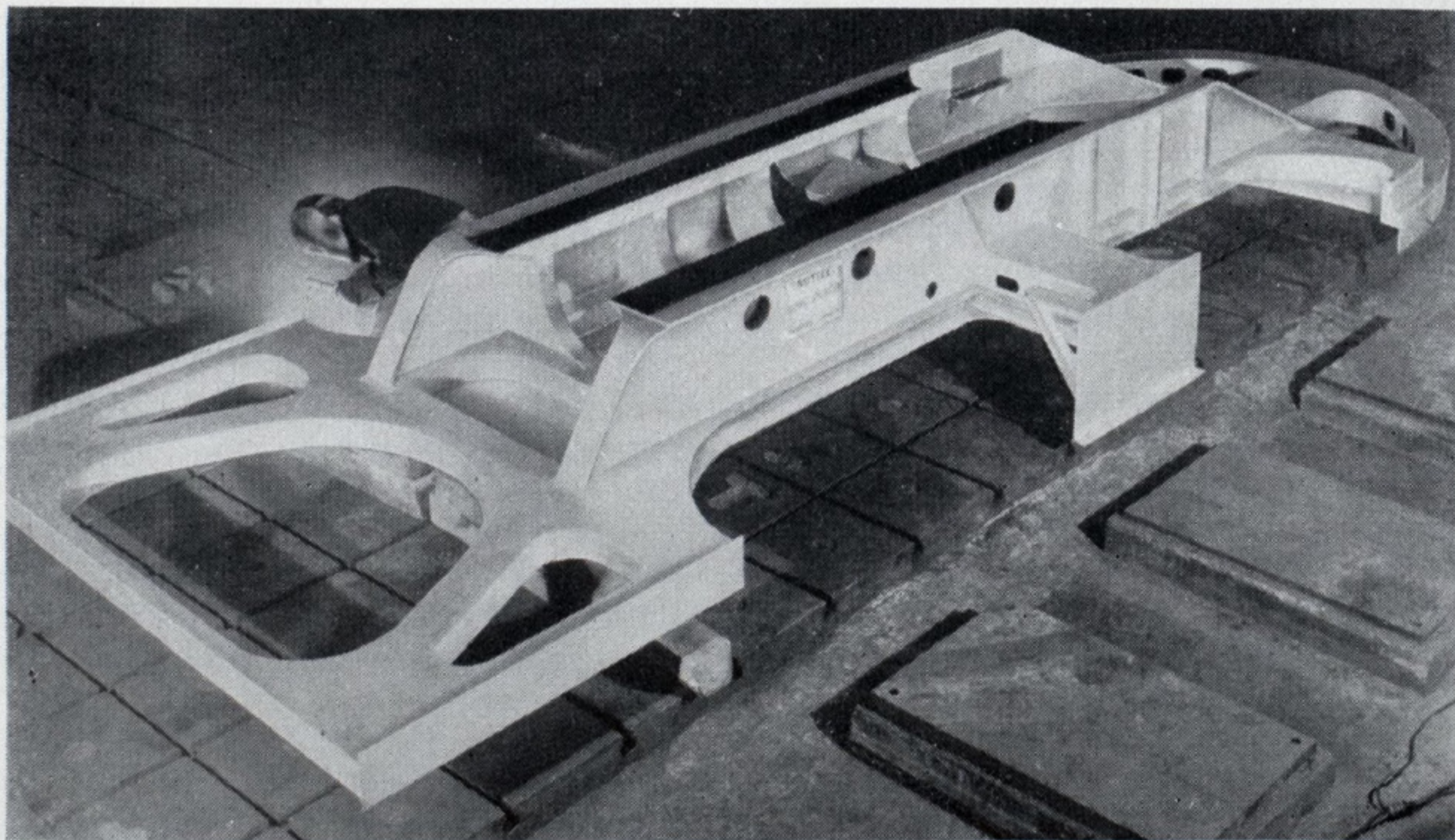
The Atlantic Refining Co., Philadelphia, awarded a contract to the Kensington Shipyard & Dry Dock Corp., Philadelphia, for repairs to the motorship POINT BREEZE at a cost of \$9688, work to be completed in seven days.

The United Dry Docks Inc., New York, was awarded a contract by the American South African line for repairs to the motorship CITY OF NEW YORK on a bid of \$7613.

The Cosmopolitan Shipping Co., New York, awarded contract to the United Dry Docks Inc., New York, for repairs to the S. S. LIBERTY, on a bid of \$9916. Todd Dry Dock, Engineering and Repair Co., submitted a bid of \$13,444 for this work.

Expanding activity in the Gulf oil trade is emphasized by the recent contract awarded the Todd Shipbuilding & Dry Dock Corp., Mobile, Ala., by Walker & Daley, New York, for reconditioning the tanker ALPHA which has been laid up for three years. The ALPHA is being made ready for charter to an oil company for transporting crude and fuel oil between Gulf and Atlantic ports. The tanker BETA of the same line, a sister ship, is also being taken out of lay-up.

On April 6 the department of plant and structures of the city of New York received bids for repairs to the municipal ferryboat RICHMOND as follows: Brewer Dry Dock Co., \$14,488; United Dry Docks Inc., \$14,570; and Federal Shipbuilding & Dry Dock Co., \$14,850.



Welded steel engine bed for supporting the 600-horsepower diesel engine generator set and forward half of the power car on the new high speed streamlined passenger train Zephyr





# Supervising Cargo Handling and Stowage A Deck Officer's Point of View

BY "THE MATE"

I HAVE been giving a great deal of attention to supervision of cargo handling and stowage by the mates. Theoretically the plan of having a mate in each hatch is ideal, but practically, under conditions prevailing on most ships, it doesn't work out as intended. It is another case of the office giving instructions without full appreciation of or ignoring the circumstances involved. If the office made it a point to find out whether or not its instructions could be made to work in a practical manner, there would be either a modification of the instructions or of the conditions that prevent the instructions from being carried out.

Just recently a safety circular came out instructing the mates and stevedores to bolt strongbacks when working cargo, so that they could not be unshipped, and thus cause an accident. It would seem that the office should first make certain that the ship's strongbacks could be bolted. Orders had been given which could not be obeyed. In a case of this kind it would of course be the officers' duty to call the port captain's attention to the matter at once.

## A Ship's Port Time

It is the same way, to a large degree, with the idea of having a mate in each hatch. The rule does not work as planned because it does not allow for the practical difficulties involved.

Take for instance port time of one of our ships in port. The ship will

arrive Friday morning 8 a.m. The first mate has been on the bridge since 4 a.m.; the second mate was on bridge from 12 to 4 a.m. and the third mate was on bridge until 12 p.m. the previous night.

What is the actual procedure in these circumstances? The chief mate comes off duty at 8 a.m. He has breakfast, puts the bos'un to work, and meets the stevedore with a cargo plan and other particulars of the cargo.

The second mate was called half an hour before docking. He may or may not have had his breakfast; he is required to be on the after deck at 8 a.m. when the longshoremen come on to rig gear and open the hatches.

The third mate was called half an hour before docking. He may or may not have had breakfast; he is required to be on the forward deck at 8 a.m. when the longshoremen come on to rig gear and open hatches.

From 8 a.m. to 12 noon the ship is working cargo in four hatches. The chief mate is required to be at the disposal of the stevedore, to go back and forth between ship and pier; supervise work on such things as cannot be done at sea, as well as being at the call of captain in paying off and other matters. Also he is consulted by the marine superintendent as to repairs, stores, etc.

The second mate is required to be permanently on the after deck and in the holds, while the third mate is

required to be on forward deck and in holds. From 12 to 1 p.m., dinner and personal matters are attended to; from 1 to 5 p.m., the schedule is the same as in the forenoon.

Probably it has been a question all afternoon whether or not the ship will work overtime that night. Usually definite instructions are not received until between 4 and 5 p.m. Then the chief mate and the second mate are off the ship. This leaves the third mate in complete charge of all loading. One man is on duty during the night, when in reality it is far more important that there be a full complement of men than in the daytime.

## Other Duties of Mate

At 12 midnight, the discharging is stopped. At 8 a.m. Saturday loading commences. The chief mate is required to be on duty, as above, but with the exceptions of taking on new members of the crew instead of discharging the old crew, checking up on stores and in general preparing the ship for the voyage. Also he must hold himself at the disposal of the stevedore as to loading cargo which should require more of his time than the discharging did. And then the captain calls on him from time to time in connection with various matters.

The second mate is required to be on the after deck, as above, and the third mate is forward, regardless of duty the night before. From 8 a.m. to noon, the schedule is the same as above; from 12 noon to 1 p.m., din-



ner and personal requirements are attended to; and from 1 to 5 p.m. the same conditions prevail.

The mate supervises the loading of cargo. If the ship is sailing at 5 p.m., or as near thereafter as cargo is loaded, he makes certain that the hatches are closed, cargo gear stowed, etc. Finally he is busy getting papers, cargo plans, special cargo sheets, etc. from pier clerks.

The second mate is required to be on the after deck and in holds, checking any special cargo there may be. The third mate is required to be on forward deck and in the holds.

These conditions prevail from voyage to voyage, with the variation that sometimes the ship gets in on Thursday which will give both the second and third mate each a night off, otherwise they alternate, one taking one trip and the next the other trip. Should there be some reason for one of them, including the first mate, wishing to be ashore in the day time (which is not supposed to be done), he has to first ask the mate, then the mate asks the captain and he is allowed to neglect his work for his own personal pleasure. The conscientious mate has the feeling that if he wants to get a day off for some legitimate business the only way he can do it is to quit the ship. To be sure he does get time off but the feeling prevails that he had just a little rather not meet the marine superintendent when he is going up the pier.

Under the above conditions the mates are tired, disgruntled with conditions; have no time to themselves when other men do, and feel that entirely too much is expected of them, for remember that the chief mate must be on the bridge until 8 p.m. the third mate until 12 midnight and the second mate must get up at 12 midnight. The chief mate is required to put in 23 hours; the second mate, 20 hours; and the third mate, 27 hours, out of a possible 48 hours total time.

As a consequence they leave the deck to get a smoke, a cup of coffee or across the street to get "sea stores." All of which shows up in their work. One need only compare the calibre of the men in the lines which maintain these conditions as against the lines which have a more liberal attitude toward their men to show the unsoundness of this method.

#### A More Effective Way

Now, let us take this same ship's schedule and put it on a more reasonable basis. Various schedules can be worked out which would not only require two mates (which is desired) to be on duty when cargo is being worked, but would allow them time to take care of personal matters. Also it eases a man's mind to

know that he is not required to be there and, therefore, it would tend to make him give closer attention to the job when he is working, knowing that, though it is hard at present and that he must cover the work thoroughly, he will have time off without subterfuge. One master described a mate's duties as follows: "In other words a mate who is in charge of the deck at such times should be as near as possible everywhere at the same time, seeing everything before it happens, and taking measures to prevent it before it becomes an actuality." And this is just about what is expected of him. However, if he feels that the management recognizes his needs and the conditions existing, he is far more likely to endeavor to live up to what is expected of him.

Allowing that the line has reasonably responsible stevedores and long-shoremen, two mates on the average cargo steamer, with not more than five hatches working, and an adequate backing up with the sailors to take care of gear so that the mate does not have to be rigging new cargo runners or attending to the gangway falls etc., under the proposed schedule, are quite able to look after the stowage. The chief mate can answer any serious questions about stowage and keep his cargo reports etc.; the other mate to be *on the deck and in the holds* at all times. A five-minute visit to each hold every half hour to see to the separation of cargo, proper use of dunnage and the adequate filling of cargo space is sufficient. But he must be on the job to accomplish this, following the cargo as it comes in, knowing when every parcel of cargo is started in a particular hold and knowing about the time that that parcel is to be finished, and when another parcel or car lot is started.

#### Improvement In Personnel

Should conditions such as handling heavy lifts or special cargo arise, it would be necessary for one mate to spend his entire time at that hatch. Generally this could be done by the chief mate. During the beginning of work and at the end, the first few hours after arriving and the last few before sailing, all mates should be on board.

Another point to be remembered is, that by arranging such work schedules it would be possible for a company to obtain and hold a higher calibre of men—men in whom the captain and the chief mate could have faith, and who could be entrusted to see to it that good stowage was obtained. Especially should they know that they had the backing of the mate or captain should any disputes arise with the stevedore. Lack of backing is one of the

main reasons for the lack of initiative in the junior mates.

As to night work; schedules should be worked that would keep the chief mate on duty until such work is actually started, when he can leave after giving the junior mate who is to be on watch, any definite instructions he desires, and the authority to settle all problems that might arise during the time he is away from the ship while cargo is being worked.

Such schedules should be in a printed form, along with other definite instructions. This is true regardless of how small the line may be. Printed instructions let a man know just what is expected of him.

## Heavy Cruise Bookings

The Colombian line, which inaugurated its new cruise service a little more than a year ago with the new palatial liners COLOMBIA and HAITI, and popular cruise ship PASTORES, has done remarkably well throughout the year. The company provides weekly sailings from New York and the vessels have the distinction of not only being among the finest cruise ships afloat but they are also the fastest liners regularly employed in the New York-Port au Prince, Kingston, Puerto Colombia run.

## Capacity Passenger List

Booked to capacity with a record list of 420 first class passengers the Ward line's turbo-electric liner MORRO CASTLE sailed from Pier 13 East river at 5 p.m. March 30 on a special Easter cruise to Havana, Miami and Nassau in command of Capt. R. W. Willmott.

This passenger list is the biggest ever booked on the MORRO CASTLE according to M. Seckendorf, passenger traffic manager of the Ward line. Every berth on the large palatial American flag liner was sold out many days before sailing and the company was forced to press the popular SIBONEY into service to take care of the overflow.

## Westinghouse Orders Up

Orders booked by Westinghouse Electric & Mfg. Co. for the first quarter of 1934 totaled approximately \$20,100,000. This compared with \$12,850,000 for the first quarter of 1933, an increase of almost 57 per cent. The outlook for the months immediately ahead is encouraging and the business trend seems to be again definitely upward. Manufacturing activities for March are higher than for any month since December 1931.



## Traffic Shows Big Gain at Los Angeles

Exports at Los Angeles continue to show a large increase over a year ago. During the month of March the value of exports to other countries from Los Angeles approximated \$6,915,000 compared with \$5,042,687 in March a year ago, an increase of 37 per cent. Imports increased from \$2,288,000 to \$3,014,000, an increase of 24 per cent.

Total foreign trade for March aggregated nearly 400,000 tons in volume and was a little under \$10,000,000 in value.

Shipments to Hawaii, however, were not up to those of last year.

Shipping shows a decided increase over a year ago. During March 648 ships arrived at Los Angeles harbor with a net tonnage of 1,997,054 tons, compared with 515 ship arrivals in March last year and a net tonnage of 1,565,794 tons. March also showed a gain of 83 ships and 240,000 tons over the month of February.

Oil shipments are climbing up. There was shipped out of Los Angeles harbor during March a total of 6,266,152 barrels of oil compared with 5,575,236 barrels in March, 1933. Nearly 2,000,000 barrels of these shipments were for foreign consumption.

Lumber receipts during March approximated the same average during recent months—just under 1,000,000 board feet per day came into Los Angeles harbor during the month. The total for the first three months of 1934, however, was 16,000,000 board feet more than in the first three months of 1933.

## Longer Work Week

In accordance with an order, issued April 2, by Hugh S. Johnson, national recovery administrator, shipyards and ship repairing plants are now permitted to work 36 hours a week on government work. In the original code only 32 hours a week were allowed on work allocated under the public works administration. The order was issued as a modification of the code for the shipbuilding and shiprepairing industry in line with recommendations made by the national labor board.

It was stipulated that the hourly wage rates prevailing in private yards shall not be reduced because of the increased hours.

## Defines Shipbuilding Code

An order effective April 3, has been issued by Hugh S. Johnson, national recovery administrator further particularizing the definition of

"industry" under the code for the shipbuilding and ship repairing industry in order to exclude the operations of the smaller boat building and boat repairing industry which has been given a separate code.

Builders of wooden boats and vessels and wooden floating marine equipment, pleasure boats and yachts, wooden or metal, up to and including 150 feet in length overall are now clearly defined as not under the code for the shipbuilding and ship repairing industry, but are under a separate code covering the smaller boat building field.

## J. E. Dockendorff Dies

J. E. Dockendorff, 68, president of the American Diamond Lines Inc. and the Black Diamond Steamship Corp., died at New York on April 2. The cause of death was pneumonia.

He first came into prominence in shipping as the operator of the American Diamond line between New York, Antwerp and Rotterdam for the United States shipping board. Later he organized the Black Diamond Steamship Co. and bought 10 of the ships of the American Diamond line from the shipping board for private operation in the same service.

He reduced the number of vessels when he took over the American Diamond line from 13 to 10, but continued equivalent service by rebuilding four of these vessels to give an increased speed of 14 knots. The changes necessary in the vessels to step them up from 11 knots to 14 were proposed by and carried out under the direction of M. J. Hanlon, marine superintendent. The successful conversion of these vessels at a comparatively moderate cost is considered an exceptional feat in marine engineering.

Control of the American Diamond lines, which Mr. Dockendorff headed, it is understood, has been held by A. Iselin & Co. and the New York Central railroad since the line was organized under private ownership in 1931, and will continue the same.

He is survived by two sons Noyes C. and John E. Dockendorff Jr., both of whom are associated with the shipping company.

## Lay Keels for two Tankers

Keels were laid March 22, at the New York Shipbuilding Co., Camden, N. J., for the two Standard-Vacuum Transportation Co. tankers which are scheduled to be completed in the early fall.

The vessels, 500 feet long by 61 feet beam, will have a registered gross tonnage of 9100 and a cargo capacity of 5,300,000 gallons. Propulsion will be by geared turbines of 4000 shaft horsepower capable of driving the loaded vessel at a speed of 12½ knots.

## To Observe Maritime Day In Many Sections

Maritime day, America's annual tribute to the steamboat, will be observed throughout the nation on May 22.

Maritime day was inaugurated last year to commemorate the one hundred and fourteenth anniversary of the sailing of the SAVANNAH, first steamship to cross the Atlantic. The occasion was given official status through congressional action and a proclamation by President Roosevelt. Ceremonies were held in all sections.

Plans are now being made for the second observance of the SAVANNAH's historic anniversary. The Georgia Bicentennial commission, which was active last year, has been disbanded but individual members are lending their support to the forthcoming celebration. Programs will be held in more than 30 cities located in a score of states. Among the cities which have already made plans are Albany, Boston, Springfield, Mass., New London, Conn., New Orleans, San Francisco, Norfolk, St. Louis, Washington, and Savannah.

At New London services will be held over the grave of Stevens Rogers, navigating officer of the SAVANNAH, on her epochal voyage. The captain of the SAVANNAH, Moses Rogers, a brother-in-law of the sailing master, also came from New London. Various Georgia organizations will hold a joint meeting at Savannah, from which the pioneer trans-oceanic steamship took her departure on the morning of May 22, 1819. A meeting is also being arranged for New York, and sponsors hope to place a tablet in Corlear's park, site of the shipyard where the SAVANNAH was built.

Many organizations are cooperating in the second observance of Maritime day. In the forefront is the National Maritime league, consisting largely of friends of the American merchant marine who have no financial interest in shipping. Other organizations interested in the Maritime day program include the navy department, the coast guard, the New York State Merchant Marine academy, the American Society of Naval Architects and Engineers, the Propeller club, with branches in 31 cities, the Mississippi Valley association, the Middle West Foreign Trade committee, the National Council of American Shipbuilders and the American Steamship Owners' Association.

Radio programs will be given in several cities, and other stations have been asked to feature nautical music for the day. Book stores and libraries are arranging special displays of maritime literature. Brief programs will be staged aboard ships at sea, while the public will be invited to visit vessels in port to see what the American merchant marine has to offer



# Useful Hints on Cargo Handling



IN AN address, March 7, at the fifth annual greater New York safety conference, Capt. N. Kvande, terminal superintendent, New York and Cuba Mail Steamship Co. said in part:

When a ship is designed and also when under construction, safety in handling cargo should be given due consideration. In other words, safety work in stevedoring begins when a ship is designed and is being built, but it never ends.

Every ship should have the life line around hatches in the between decks, placed at least one (1) foot back from the hatch openings. Life lines placed around the edge of the coaming, where drafts coming up or going down may hit them, are not of much use as safety devices. The close fitting of beams and hatch covers is of the utmost importance. Defective or badly fitted hatch covers have been the cause of many workmen falling into the hold, causing serious injuries. When the hatches are opened up strongbacks and hatch covers should be properly placed on deck and piled up, leaving working space and a free gangway for the men. This is most important, especially when night work is performed.

A reinforced modern hatch cover is produced in Cardiff, Wales. The double covers have a vertical reinforcing plate between joints and are fitted with either closed end shoes or steel bands. These covers last longer than the ordinary type of wooden hatch cover and are a preventive of accidents because broken hatch covers are frequently a cause of injury to longshoremen.

Rules are made which do not fit conditions human and physical. This is because the executives are not in close enough touch with the actual conditions.

## Tween Deck Hatch Rails

TWEEN deck hatches when open must be protected by a rope or light chain hand rail. As a rule this rope or chain is carried in stanchions 2 feet 6 inches to 3 feet high set in sockets close to the coaming.

To overcome the difficulty of keeping the sockets clear and ready for

THIS page is being devoted to short items on all matters having to do with the more efficient turn-around of ships. These items are intended to be of a helpful nature.

We will welcome for this page brief descriptions, illustrated if possible, of any better or safer way of performing any function in cargo handling. Also, any questions submitted will be answered by the editor.

use and also to facilitate handling of cargo a Gulf steamship company has worked out a practical arrangement for carrying the guard rope or chain through the lower end of angle bars pivoted to the coaming at the four corners of the hatch above. These angle bars are about 5 feet long and when not in use are stowed under the deck.

## Principles Not Precedents

THE following quotation from Admiral Mahan's famous book *Influence of Sea Power on History*, states a principle in connection with naval warfare which is also applicable in the management of a commercial fleet of ships.

"It is not therefore a vain expectation as many think, to look for useful lessons in the history of sailing ships as well as in that of galleys. Both have their points of resemblances to the modern ship; both have also points of essential difference, which makes it impossible to cite their experiences or modes of action as tactical precedents to be followed. But a precedent is different from and less valuable than a principle. The former may be originally faulty or may cease to apply through change of circumstances; the latter has its origin in the essential nature of things, and, however various its application as conditions change, remains a standard to which action must conform to attain success. War has such principles; their existence is detected by the study of the past which reveals them in successes and in failures, the same from age to age. Conditions and weapons change; but to cope with the one and successfully wield the others, respect must be had to these constant

teachings of history in the tactics of the battlefield, or in those wider operations of war which are comprised under the name of strategy.

"It is, however, in these wider operations which embrace a whole theatre of war and in a maritime contest may cover a large portion of the globe, that the teachings of history have a more evident and permanent value, because the conditions remain more permanent."

## Efficient Cargo Handling

AMONG shipping men the Matson terminals, Seattle, have the name of being one of the most efficiently operated plants on the North Pacific. Under the direction of W. D. Gould, who is the operating manager of the Puget Sound district for the Matson Navigation Co., new methods and new equipment have been developed, tending to make for increased efficiency, decreased operating costs and lesser hazards to both labor and cargo.

When cargo is delivered at the terminals it is unloaded on sling boards, these being then handled by lift trucks and placed in stock piles to await a second move to ship side.

To the Hawaiian Islands moves constantly a large quantity of mill feed. To save time and handling costs the mill rebuilt a heavy truck, adding a strongly braced wood platform at the rear, the entire load being moved by tractor. This truck's capacity is ten tons, consisting of five 2-ton sling units. Leaving the terminals empty, the five sling boards are placed in position on the truck ready to receive their loads at the mill. Arriving at the wharf Yale & Towne lift trucks take each unit load from the mill truck and deposit it in stockpiles. The entire load of ten tons is discharged in six minutes. This method has been found highly satisfactory at both mill and dock.

The Matson terminals, Seattle, are 580 x 208 feet outside with a warehouse measuring 523 by 160 feet. There are 83,000 square feet of which Matson occupies 60,000. Two railroad tracks serve the wharf on the south side and a depressed track on the north.

Conscientious supervision is the only assurance that instructions will be carried out.



# Port of Boston

(Continued from Page 20)

The loss in foreign exports in recent years due largely to differential rate handicaps, has been more than made up by increases in foreign imports, domestic coastwise traffic, and the development of trade intercourse between New England and the Pacific coast through the Panama canal. The value of imports and exports in 1907 was only \$123,414,168 and \$104,610,908 respectively.

From 1905 to 1920, the total waterborne business of the port averaged 9,500,000 net tons. From 1921 to 1925, the yearly average was 13,500,000 tons. In 1925 and 1926, the yearly average increased to 15,000,000 tons. The annual report of the chief of engineers, war department, shows that the waterborne business of the port for the calendar year 1929 had reached the unprecedented total of 19,065,050 tons, valued at nearly \$1,000,000,000, the greatest in the history of the port with the exception of 1925 and 1927 when the value was slightly more and the tonnage considerably less. Due to the world-wide depression in recent years, the commerce of the port dropped to an average of 15,420,437 tons, valued at \$607,575,717 during the three year period, 1930-1932 inclusive.

## Great Variety of Imports

Boston's imports are probably more diversified than those of any other port in the United States with the exception of New York. Commodities are received from every part of the navigable globe. Some of the principal imports consist of gunnies, tea and shellac from India; rattans, spices and rubber from Straits Settlements; hemp and sugar from the Philippines; cotton and onions from Egypt; wool and hides from Australia and South America; coffee and cocoa from Brazil; bauxite from British Guiana, nitrate from Chile; iron ore from Algeria; woodpulp from Scandinavian ports; paper, earthenware and toys from Germany; pig iron, steel and cement from Belgium and Holland; hides and skins from Argentine; china clay and chalk from England; fruits, nuts and olive oil from Mediterranean ports; mahogany and palm oil from Africa; cocoanut oil and peanut oil from the Orient; raw sugar from Cuba; coal from Wales and Russia; bananas from Honduras and Jamaica; crude oil from Venezuela and Mexico; salt from Turks Island; molasses from Argentine and Cuba; pulpwood from Russia; and other commodities too numerous to specify, from all parts of the world.

Palm oil in bulk from the West Coast of Africa; cocoanut oil in bulk from the Far East; molasses

from Argentine; peanut oil in bulk from the Far East; iron ore from Newfoundland and Mediterranean ports; and bauxite from British Guiana, are among the import commodities now received in substantial volume which did not appear in the port receipts of former years.

## Increase in Foreign Imports

The upward trend of foreign imports is indicated by the increases in some of the principal commodities, a few of which are:

	1920	1932	Per Cent Increase
	(Net Tons)		
Coal .....	6,357	452,358	7031
Cocoa, Coffee, Tea ..	8,713	51,257	488
Petroleum Products..	268,258	380,673	42
Rubber .....	1,307	29,650	2169
Sugar .....	137,488	243,915	77
Woodpulp .....	40,687	139,615	243

Boston exports are shipped to Great Britain, Continental Europe, the Far East, South America, Africa, West Indies and other parts of the world, and they include bread stuffs, cotton waste, fruits and vegetables, lard and tallow, provisions and meat, finished leather, shoes, cotton piece goods, paper, refined sugar, lumber, hardware, grain and flour, druggists' sundries, machinery, pianos, automobiles and confectionery.

The commerce and facilities of the port of Boston are of peculiar value to the industries and business interests of this section. The great industrial activity in the immediate vicinity of the harbor makes possible the handling of the raw materials for the industries and the forwarding of their manufactured products by water at great savings in transportation costs. Whereas at some of the other great seaports, only a small percentage of the waterborne traffic is for local industries, the bulk of the business being through traffic which benefits comparatively few interests.

It is doubtful if any seaport in this country is of greater value to its local manufacturers than Boston. New England industries depend in a large degree upon foreign imports for their raw materials. There is scarcely a foreign country that does not supply raw materials for our New England industries through the port of Boston. This is a real advantage, because it affords them a substantial saving in transportation and rehandling costs compared with transportation costs to competitors in the interior. In fact, cheap water transportation has always been an important factor in the development of New England's industries.

The domestic water commerce between Boston and the entire seacoast of the country furnishes New England with a cheap and excellent form of transportation that is denied to its inland competitors. On the one hand, it is available for the purpose of bringing to our community the raw

materials required by our productive enterprises, and on the other hand, it serves greatly to broaden the market of our local manufacturers by virtue of the low carrying rate of this type of transportation.

The principal industries being located so near to the seaboard, it is possible for them to deliver their exports at the overseas piers and to receive their imports the same day the steamers depart or arrive. Motor trucks over excellent highways, and adequate rail service facilitate the handling of both inward and outward shipments from and to the piers.

## Large Population Served

A report made several years ago on New England railroad consolidation said "more than 70 per cent of the New England population still live, and the major part of our industrial activity is carried on, within 50 miles of the seaboard. Within this 50-mile zone lives 97 per cent of the population of Connecticut, all of Rhode Island, 61 per cent of the people of Massachusetts, 57 per cent of New Hampshire, and 77 per cent of Maine."

The ability of industries located along the New England seaboard to receive such a large proportion of their fuel requirements by water is another practical benefit to this section from water transportation. Westbound freight rates differentially lower than the standard all-rail basis are in effect from Boston to the central, southern and western parts of the country and via the all rail routes through Canada, rail and lake via Lake Ontario and Lake Erie ports, and ocean and rail via the Merchants & Miners Transportation Co. route through Baltimore and Hampton roads. The steamers in this Merchants & Miners Transportation Co., service leave Boston almost daily and this high character of service is maintained throughout the year.

Other coastwise lines ply to ports north of Boston, to adjacent foreign countries, such as Canada, Nova Scotia, New Brunswick and Newfoundland, and also to the principal ports of Maine.

The daily steamship service operating between Boston and New York through the Cape Cod canal is probably equal to any coastal service in this country. Shipments leaving Boston in the evening on these steamers are delivered to consignee in New York the following morning, and the benefit to Boston from similar overnight service on the large quantity of merchandise forwarded daily from the metropolis to New England through Boston is substantial.

Passenger traffic of the port is steadily increasing, and gratifying reflects the enlarging services and

(Continued on Page 40)



# Up and Down the Great Lakes

Ice Conditions Delay Opening—Begins Passenger Service—  
Lake Levels—Pay Increase Granted—Propeller Club Meetings

THE annual meeting of the Lake Carriers' association usually held on the third Thursday in April, and which in a sense represents the formal opening of the bulk cargo trade on the Great Lakes, has this year been postponed to May 3. The postponement was made necessary because of the public hearing to be held in Washington on the general shipping code April 26.

At this time it is impossible to predict when navigation will be open to the upper lakes. As this is written the northern connecting channels are still solidly blocked with ice and the temperatures continues at and below freezing. A prolonged spell of warm weather and rains might change this condition fairly rapidly, but it is quite likely that it will be after the first week of May or later before it is possible to get through to the upper lakes.

## Estimated Ore Movement

Informed opinion is generally optimistic for an active season in the bulk carrying trades. The consumption of ore is based on the requirements of the steel industry and this industry at the present time is operating at 55 per cent of capacity with the tendency, at the moment, strongly upward. Predictions, influenced by present conditions, are now freely made that from 35,000,000 to 40,000,000 tons of ore will be moved on the lakes this year. This compares with a movement of 21,623,898 tons during the season of 1933. It is also estimated at this time that the bituminous coal cargo movement this year will reach at least 35,000,000 tons as compared with 31,776,654 tons last year. The situation as regards grain is uncertain.

The opening recommended draft through all channels and harbors of the Great Lakes is 17 feet 6 inches, which is almost a record low and compared with 17 feet 9 inches at the beginning of navigation last year.

It is difficult to give any figures on the total number of bulk cargo vessels that will be commissioned at the beginning of the season, but it will undoubtedly exceed last year. There are 330 vessels in the bulk cargo carrying trade, and it is not unlikely that one-half of these will go into commission at the beginning of the season, with an anticipated steady increment as the season progresses. The Pittsburgh Steamship Co., largest bulk vessel owner on the Great Lakes, has made

definite appointments of captains and engineers for 43, or exactly one-half of its 86 steamers. The M. A. Hanna Co. is commissioning 7 of its 10 ships.

## Begins Passenger Service

The Detroit & Cleveland Navigation Co. opened its regular passenger service between Cleveland and Detroit on April 16. The vessels EASTERN STATES and WESTERN STATES were placed on this service. Later they will be operated between Cleveland and Chicago.

The service between Detroit and Buffalo in which the vessels GREATER BUFFALO and GREATER DETROIT are used will commence early in May.

## March Lake Levels

The United States Lake survey reports the following monthly mean stages of the Great Lakes for the month of March, 1934, determined from daily readings of staff gages.

Lakes	Ft. above mean sea level
Superior .....	602.11
Michigan-Huron .....	577.42
St. Clair .....	572.21
Erie .....	569.60
Ontario .....	243.68

Lake Superior was 0.10 foot lower than in February and it was 0.28 foot above the March stage of a year ago.

Lakes Michigan-Huron were 0.02 foot lower than in February and they were 0.22 foot below the March stage in 1933.

Lake Erie was 0.01 foot lower than in February and it was 1.32 feet below the March stage of a year ago.

Lake Ontario was 0.01 foot lower than in February and it was 0.59 foot below the March stage of a year ago, 1.71 feet below the average stage of March of the last ten years.

## Propeller Club Meetings

A dinner of the Propeller club of the port of Cleveland will be held on the evening of May 3, J. B. Weaver, deputy administrator in charge of the shipping section of the national recovery administration, it is expected, will be the guest speaker.

As May 3 is the date set for the annual meeting of the Lake Carriers'

association, a large attendance at the Propeller club dinner is anticipated.

The recently formed Propeller club at the port of Toledo held its first regular monthly dinner on April 18. Some 30 men identified with marine and allied industries in Toledo and adjacent sections attended. The guest speaker was Rex Wells, export manager of the De Vilbiss Co., who delivered an interesting address on his experiences during 30 years of extensive foreign travel. He urged a concerted effort in the building up of an American merchant marine.

## Shorter Hours, More Pay

Though the general shipping code and the divisional code for the Great Lakes have not been approved, the Lake Carriers' association has recommended an increase in the number of men on board the ships. This increase will vary according to the size of the vessel and the available accommodations. According to Capt. Joseph S. Wood, president of the Lake Carriers' association, and chairman of the executive committee, the increase in crews which has been recommended will in most cases mean a reduction in working hours to 8-hour watches. It has been estimated that if this increase applies to all of the 400 or so vessels of the association and if they should all find employment during the year that it would give additional employment to approximately 2400 men.

George A. Marr, vice president and secretary of the Lake Carriers' association, announced after a meeting of the executive committee held in Cleveland on April 12 that a resolution had been adopted recommending approximately a 10 per cent increase in the pay of all officers and men on the vessels belonging to members of the association. This was based on the adoption of a minimum wage scale which is equivalent to such an increase.

Under the new wage scale the men on Great Lakes vessels will now receive wages about 4 per cent less than they did in 1929.

The balance of iron ore on Lake Erie docks, April 1, 1934 was 4,981,536 tons, which compares with 5,070,768 tons on April 1, 1933, and 5,759,263 tons on April 1, 1932.



## Deferred Payment Plan for Trips on Cunard Line

The Cunard and associated lines recently announced that arrangements had been formally concluded with a number of Morris Plan banks and companies throughout the United States for financing European trips and pleasure cruises over its services. The deferred payment plan, as it is called is a great deal more comprehensive than that inaugurated by Cunard in 1932. Under the new plan all major expenses, such as railroad and steamship fares, hotels and sightseeing expenses, etc., of a European trip or pleasure cruise may be financed.

A down payment of approximately 25 per cent of the total cost of the trip is required before sailing. Subsequent payments over a period of a year do not start until 60 days after sailing date. Special provision has been made for school teachers and educators, whose salaries do not usually recommence until after the summer season, whereby their first payment is not made until Oct. 1, irrespective of date of sailing. The plan is applicable to all classes and types of accommodation, although it is anticipated that it will prove most popular among those sailing in cabin and tourist class.

In commenting upon his company's announcement of the deferred payment plan, H. P. Borer, general passenger manager of the Cunard line, said: "The public's response to the original deferred payment plan inaugurated by us in 1932, was so great that we have little doubt of our new and greater plan meeting with the immediate acceptance of the traveling public. There is no doubt that with conditions improving, a great deal of confidence has returned and there is a natural pent-up desire for travel."

The United States engineer office, Vicksburg, Miss., has awarded contract for the construction and delivery of one barge for bank grader at a cost of \$33,247, to the McClintic-Marshall Corp., Bethlehem, Pa. This barge is to have a length molded, 120 feet; width molded, 60 feet; and depth molded, 7 feet.

## To Work 40-hour Week

As the result of a ruling by Attorney General Homer S. Cummings on April 6, navy yard employes were placed on a 40-hour week schedule. It is said that over 42,000 workers are affected.

Navy yards have until this time worked an average 44-hour week. Some technical and professional employes are not affected.

From now on navy yards will work eight hours a day, five days a week. This will bring the navy yards within four hours a week of the time now permitted in private shipyards. The latest ruling of the national recovery administration increased hours of labor in private shipyards on government work from 32 to 36 hours a week.

## Melius Elected President

Frederic N. Melius, on April 11, was elected a director and president of the American Diamond Lines Inc. as successor to the late John E. Dockendorff. He is also president of the United States Freight Co. and Universal Carloading & Distributing Co.

V. J. Sudman was also elected a director of the American Diamond Lines Inc. and president of the Black Diamond Steamship Corp., its operating subsidiary. M. J. Hanlon, marine superintendent, was elected vice president of the Black Diamond Steamship Corp.

## Alfred J. Jupp Dies

Alfred J. Jupp, a vice president of the Lunkenheimer Co., Cincinnati, died suddenly in Roosevelt hospital, New York April 10, while on a business trip.

Born in Cincinnati June 25, 1875, Mr. Jupp entered the employ of the Lunkenheimer Co. in May 1890. In 1896 he was made New York representative, returning to the home office in Cincinnati in 1913.

He was active in the Manufacturers' Standardization society and also contributed the greater part of his time during recent months to code work in the valve and fittings industry.

## Capt. Ole N. Christie Dies

Capt. Ole N. Christie, for fifty years an employe of the Merritt-Chapman & Scott Corp., New York, died on April 4, at the Amityville, L. I. hospital, at the age of 77, of pneumonia.

Captain Christie, who was night superintendent of the corporation at the time of his retirement two years ago, had commanded various derrick vessels of the Black Horse fleet in New York harbor since his young manhood and had a host of friends throughout the maritime fraternity.

The new freight steamships, S. S. ANGELINA and S. S. MANUELA for the A. H. Bull Steamship Co., New York, launched at Newport News Shipbuilding & Dry Dock Co., Feb. 16 and March 16 respectively, are both fitted with a Sharples centrifugal oil purifier for lubricating oil for the turbines.

## Joint Service Inaugurated Via Panama Canal

All of the operating details having been satisfactorily worked out, an agreement was concluded on April 23 between the Panama Pacific line and the Grace line which will make available a fast weekly service between New York and West coast ports via Havana and the Panama canal.

The agreement also provides for the joint use of the International Mercantile Marine Co.'s Chelsea piers, 61 and 62, at the foot of West Twenty-second street, for all departures from New York.

The sailing of the Panama Pacific liner PENNSYLVANIA from New York on May 5 will inaugurate the new joint service from this terminal under the terms of the agreement. The first Grace liner to sail under the agreement will be the SANTA LUCIA on May 11.

Thereafter the three turbo-electric sisterships, VIRGINIA, CALIFORNIA and PENNSYLVANIA, will alternate in a weekly service with the four new Grace liners, SANTA LUCIA, SANTA PAULA, SANTA ROSA and SANTA ELENA.

All seven liners are specially equipped to carry a large quantity of refrigerator and air cooled cargo as well as general cargo. Freight will be solicited for the joint account of the two lines although separate offices will be maintained.

The joint operation of the two lines from the Chelsea piers follows an adjustment of fares recently agreed upon by the lines and made effective on April 8.

## First to Cross Lake Erie

The first vessel to cross Lake Erie this year was the freighter CRESCENT CITY on March 28.

The vessel, belonging to the Nicholson Steamship Co., was loaded with automobiles from Detroit bound for Cleveland. Severe ice conditions were encountered. After considerable delay from the time the vessel was first sighted she finally was safely docked at the Fifty-sixth street pier, Cleveland.

This is the sixth year that Capt. Clyde Tobin of the CRESCENT CITY has opened the season of navigation for vessels carrying automobiles. The CRESCENT CITY had on board 250 automobiles.

A. L. MacGregor, secretary and assistant auditor of the Pittsburgh Steamship Co., died suddenly at the Hotel Hollenden, Cleveland, on March 27. Mr. MacGregor was 70 years of age. He joined the Pittsburgh Steamship Co. in 1903, then newly organized, as assistant auditor. He became secretary of the company a number of years later. He is survived by five children.



# Personal Sketches of Marine Men

Alton B. Sharp, President, Eastern Steamship Lines Inc.

By Ben K. Price

**A**T THE age of 42, with a background of administrative experience, he heads one of the largest coastwise steamship companies.

**A**HARD worker and a keen student, he served as assistant comptroller of the shipping board until 1928 when he joined the Eastern lines.

**I**N ADDITION to years of close contact with practical operation, he brings to his duties a mind trained in business and law.



**W**HEN Alton B. Sharp recently became president of the Eastern Steamship Lines Inc., Boston, he arrived at an important milepost in a rough and circuitous journey that began 42 years ago on a farm in northern Michigan. It has been a journey that has taken him from the farm to the iron mines of northern Minnesota, to the railroad camps in the Rockies of British Columbia, then back again to Michigan for university training through two years in the navy during the World war, and then to Washington, with the United States shipping board, where he began in earnest his climb to his present position of eminence in the maritime world.

Throughout his entire career there have been the dominating evidences of hard work, for what he achieved he has had to do himself by dint of labor and study. As a youngster, if he weren't driving a delivery wagon to make money to complete his preliminary schooling, he was cutting wood and selling it, or packing ice, or keeping a cow and selling the milk; and later on, if he weren't working in the mines to carry him through his higher education, he was digging ditches, or railroading, or working in fresh water shipyards, the latter, incidentally, his first real contact with the marine industry.

Born in Benzie county, Michigan, in the northwest part of the lower peninsula, in 1892, he received his high school training there, and in 1911 took a commercial course at Ferris institute, Big Rapids, Mich. Following work in the Minnesota iron mines he spent two years in British Columbia on construction work for the Grand Trunk Pacific Transcontinental railway, now the Canadian National, advancing from timekeeper to camp boss.

He entered the University of Michigan in 1914, studying business administration. When this country became involved in the World war he enlisted in the navy and was assigned to work on the seized German ship VATERLAND, now the American liner LEVIATHAN. Later he was

commissioned an ensign, advancing to lieutenant.

In 1919 he entered the service of the United States shipping board in Washington and was assistant comptroller when he left at the end of 1928 to take the position of assistant to the president of the Eastern Steamship lines, from which he was later advanced to the comptrollership and finally to the presidency.

While in Washington Mr. Sharp devoted time to further academic study and received his A. B. degree from the University of Michigan. Later he studied at George Washington university, from which he received an L. L. B. degree, and became a member of the bar of the District of Columbia.

Hence with this background of administrative and legal training in addition to his actual experience in marine shipping, it is not surprising that Mr. Sharp has attained his present position of prominence in one of the largest coastwise transportation companies in the United States, while still a relatively young man; too, perhaps, this rounded training explains his rapid advancement to the presidency within virtually five years of the time when he first became affiliated with the organization.

In his present position, Mr. Sharp not only heads this large coastwise organization, an amalgamation of eight steamship lines, but one that has its roots in the early history of American shipping. Its oldest line, the Boston-Bangor, had its origin in 1834, and another, the Boston-Saint John, two years later, in 1836. Several others had their origin more than 50 years ago. Incidentally, the Boston-Bangor is believed to have owned and operated the first iron, seagoing, propeller ship to have been built in the United States—the steamer BANGOR in 1844.

Mr. Sharp is a member of several clubs and is active in numerous maritime organizations. He resides in Wellesley Hills, near Boston; is married and the father of two young boys. He plays golf and is an enthusiastic fisherman and hunter.



## European Shipping

(Continued from Page 11)

pected to approach half a million sterling per ship, and they are all particularly interested in the carriage of chilled meat from New Zealand and Australia, a new trade which has only been made possible by careful research into the possibilities of carbonic acid gas in conjunction with refrigeration. The first consignments of Australasian chilled beef received in Britain have been conspicuously successful.

These new ships naturally raise the question whether it is not worth while to modernize existing vessels in order to bring them more or less up to a par, but British owners at least are rather doubtful except in unusual cases. The slump has lasted so long that the average first class ship is no longer in her first youth and the cost of the alterations would have to be borne by the comparatively short life remaining, bringing the overheads to be met annually up to an unreasonable figure.

In the passenger business there is very little building in Europe at the moment beyond the new Cunarder, the most interesting ships being the two Australian liners under construction at Barrow in Furness for the P & O and Orient lines respectively. These two companies are connected, but each has its full individuality and it is a sign of the times that the ships being built are sisters. It is also interesting to note that, in spite of the fact that the P & O company has been conspicuously successful with the use of turbo-electric machinery, these ships are to have geared turbines. The reason for this is that the shipbuilders are, not unnaturally, definitely against a system of machinery which brings in a specialist firm from outside the industry and it is understood that a considerable sum has been saved on the cost of these two ships' hulls by mechanical gearing.

### To Try High Pressure Steam

At the same time it is interesting to note that the Hamburg-American and North German Lloyd, whose interests in the Oriental trade are still united, are now building two ships of 17,000 tons each with a speed of 21 knots which will be propelled by turbo-electric machinery drawing its steam at an extreme pressure of well over 3000 pounds to the square inch from Benson boilers of the type which the Hamburg-American tried with conspicuous success in one of its cargo liners. These two ships will certainly be among the most interesting machinery jobs that the shipping world has seen for a good many years.

The idea of an international tanker pool is now making excellent headway in Europe for, although the American

tanker owners are unfortunately not interested, the bulk of the British and Scandinavian oil interests have joined the scheme which holds out every hope of hardening rates, despite the failure of the previous scheme on somewhat similar lines which was limited to Scandinavian owners.

The shipping department of the Soviet government is buying a good deal of tonnage from the various maritime powers, for it is admitted that the shipping and shipbuilding sections have been among the weakest spots in the five year plans. The Russians now realize that their ideal of a government merchant service consisting entirely of the most up-to-date motorships is unobtainable unless they are willing to spend a good deal more money abroad than they have available, with the result that a number of British and other steamers are being bought in the open market including certain standard ships that were built during the war. In some cases cash is being paid, in others payment is spread over two years instead of the usual six upon which the Soviet government has formerly insisted. They are also buying a number of fine Dutch tugs.

The chartering clause that was carefully inserted into the Anglo-Russian trade agreement seems to be having the desired effect on the number of British ships which are being taken up for Russia's trade requirements, while her political quarrel with Greece is at the moment debarring Greek tramps altogether and giving the British a still better chance. Russian shipping has been greatly helped recently, and will certainly benefit still more in the immediate future, by the real progress that has been made in the improvement of the various ports.

At Easter the Port of London authority celebrated the twenty-fifth anniversary of its birth and the opportunity was taken to point out the immense difference that it has made since it took over all the docks of the Thames from the various private companies, generally bitterly antagonistic, which formerly owned them. It also has the control and conservancy of the river itself, although the riverside wharves are left to private ownership and introduce a welcome element of healthy competition.

At Southampton the gigantic scheme of improvement is making rapid progress, the first big part being practically completed. The new King George V dry dock, the biggest in Europe, has been completed and is in use so that the giant floating dock which was the wonder of its day is on the sale list. The long straight line of berthing pier is complete and in use. Behind it are many acres of reclaimed land offering ideal opportunities for the importing or exporting firms who have an eye on transport costs and which is already finding a number of good tenants.

## Hydro Electric Steering

(Continued from Page 29)

The whole system is charged with clean oil of grade SAE20 until all air is excluded from the cylinders, piping, valves and pump. A stroke control (2) is fitted to the tilting head (4) of the pump. This stroke control holds the pump in a predetermined position and a pipe connects same to the pressure side of the pump. Consequently as the pressure in the system increases the stroke of the pump is automatically reduced. With this device it is impossible to overload or stall the motor under any conditions of steering.

A control valve (10) interposed in the piping between the cylinders and the pump distributes oil to either cylinder according to the direction it is desired to move the rudder. When the control valve is in the central position, oil from the pump is circulated through a bi-pass back to the pump. The instant the valve is moved out of its central position, the bi-pass is closed and oil is allowed to flow to one or the other of the cylinders. Follow-up mechanism is connected to this valve and consists of a floating lever (7), one end of which is connected by a link to the plunger of the steering gear and the other end by means of the transmission to the pilot house.

The transmission from the pilot house to the steering gear is usually hydraulic telemotor for large ships and line shafting or wire rope on smaller ships.

## Port of Boston

(Continued from Page 36)

co-operative efforts of the water and rail lines, and public officials.

Boston's advantageous geographical situation in respect of Europe is an inalienable fact which is certain eventually to dominate passenger service and make this port the terminal for the fastest ships, whose lavishly expensive speed, designed to shorten the transatlantic passenger time, is to a notable degree nullified by the longer routes now unnecessarily followed to other ports.

It is doubtful, all things considered, if there is any factor of greater importance to the general welfare of New England than the commerce of the port of Boston. The vast annual expenditures of the steamship lines and other marine activities serving the port; the savings in transportation costs, derived by the industries and merchants from the use of its facilities, and the employment of thousands, are very practical benefits that filter throughout New England and which contributed much to the prosperity of this section.



# Marine Review

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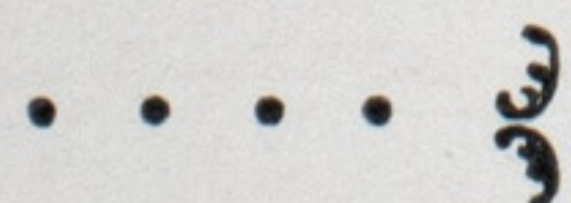
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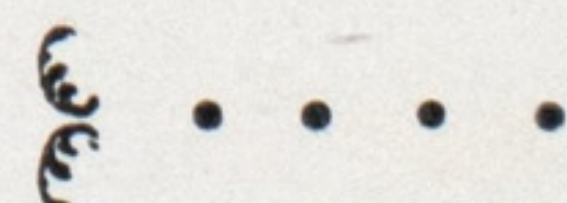
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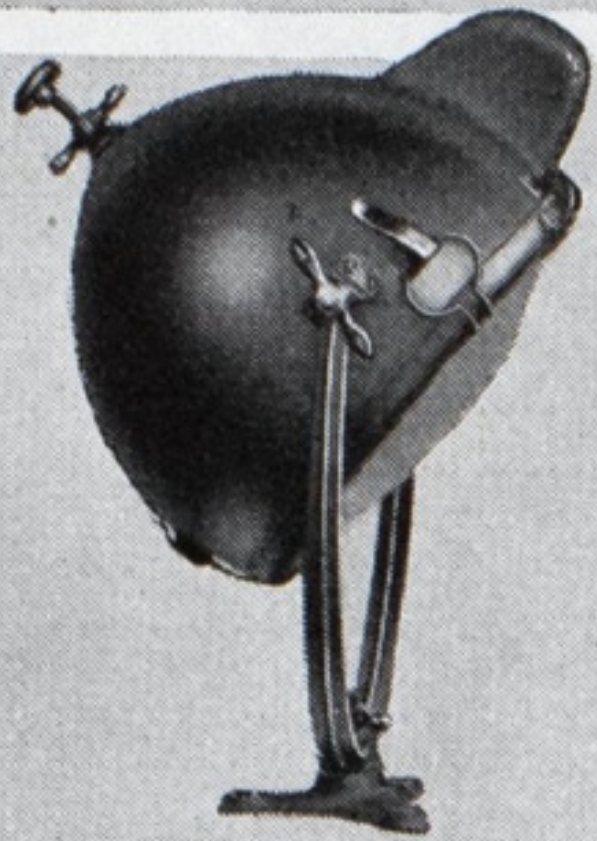
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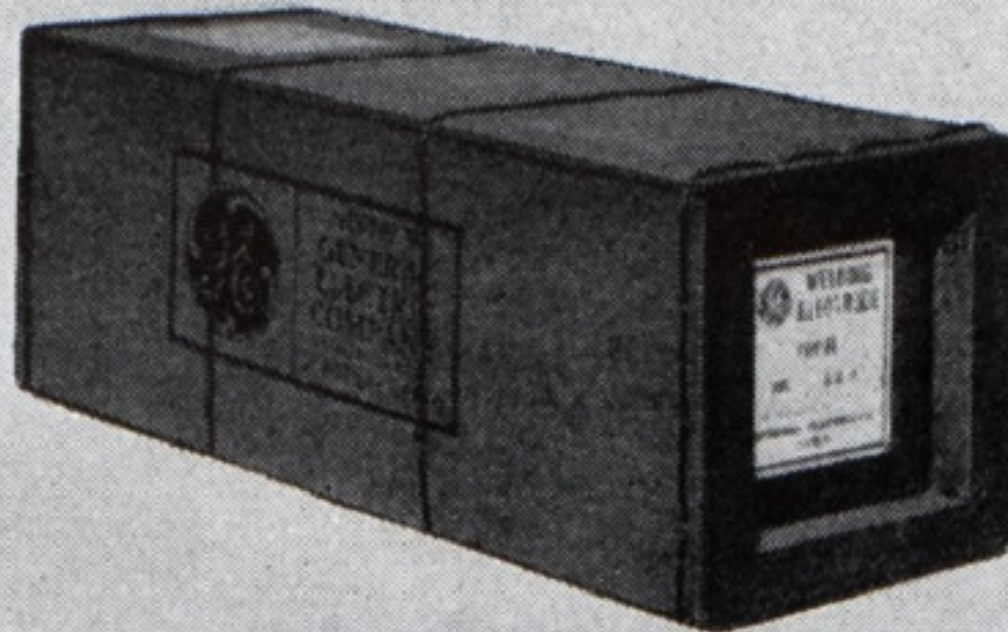


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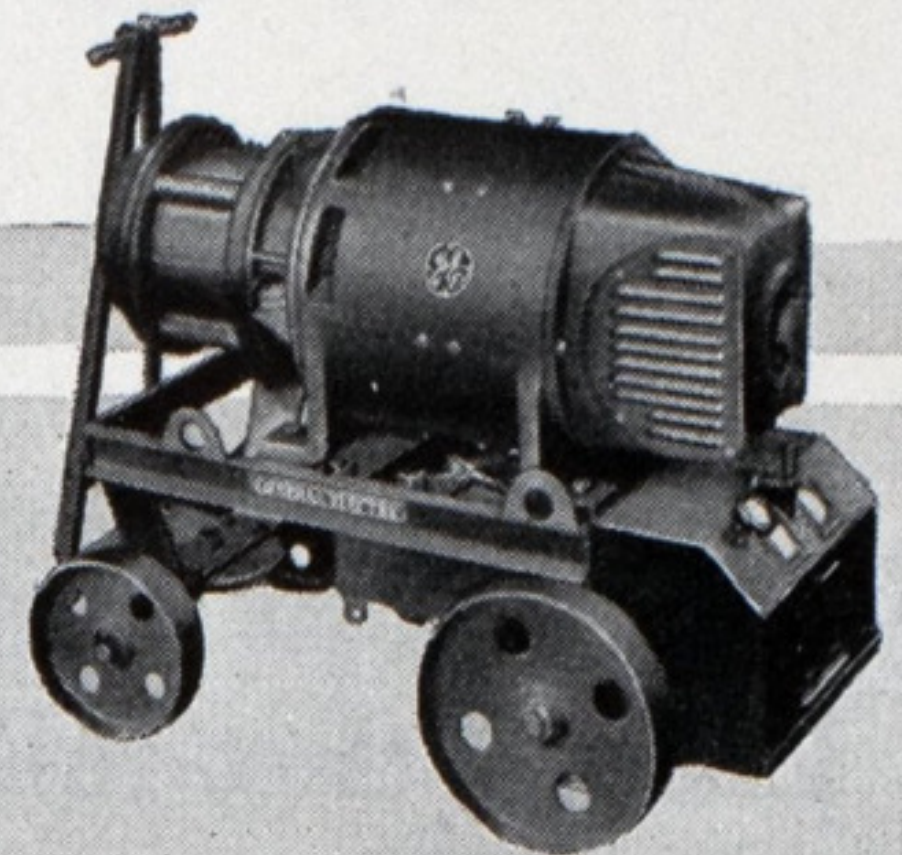
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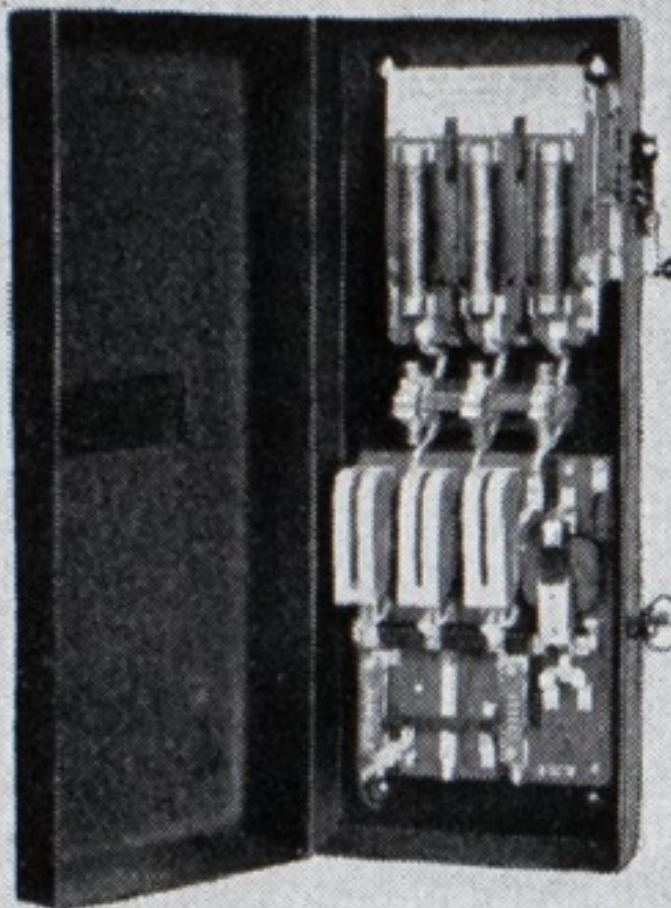
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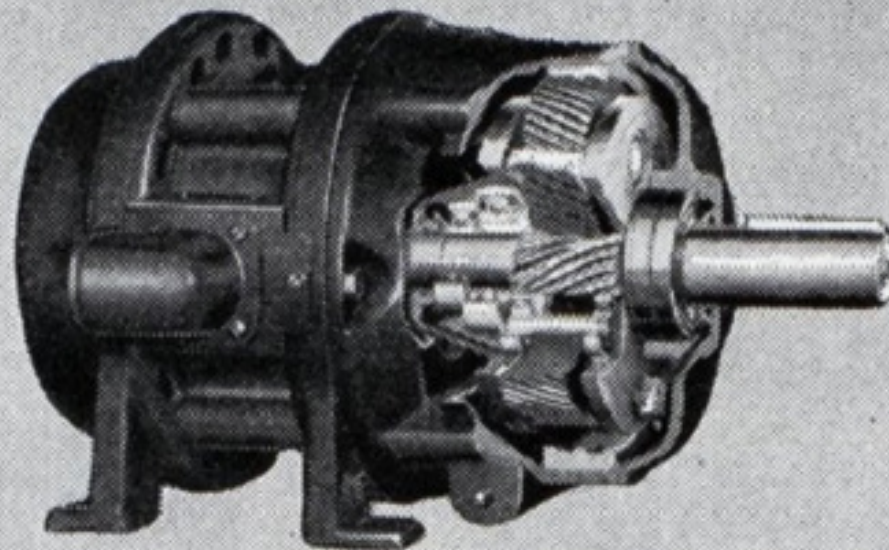
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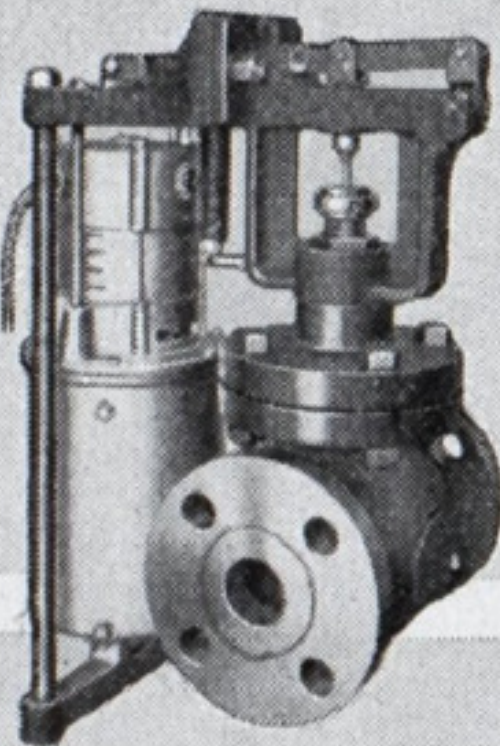
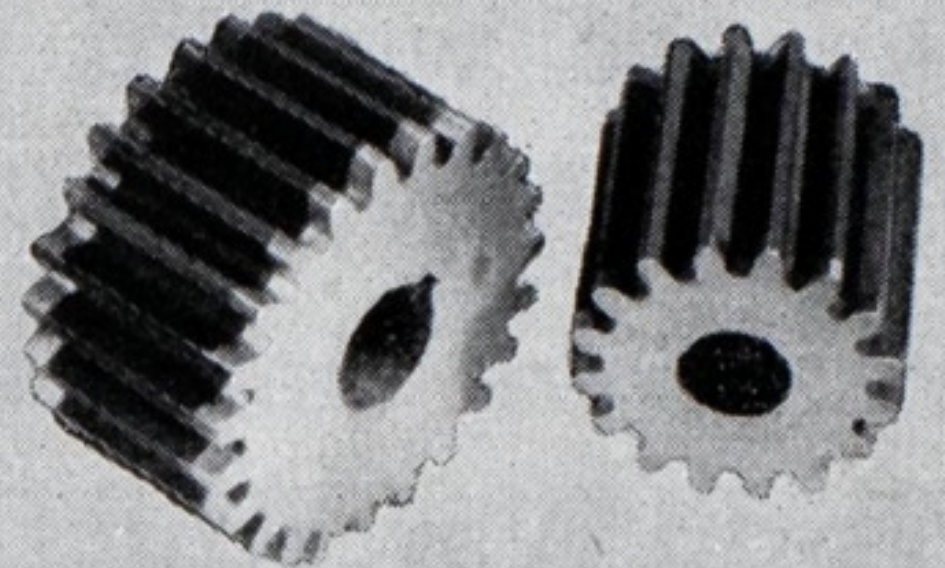


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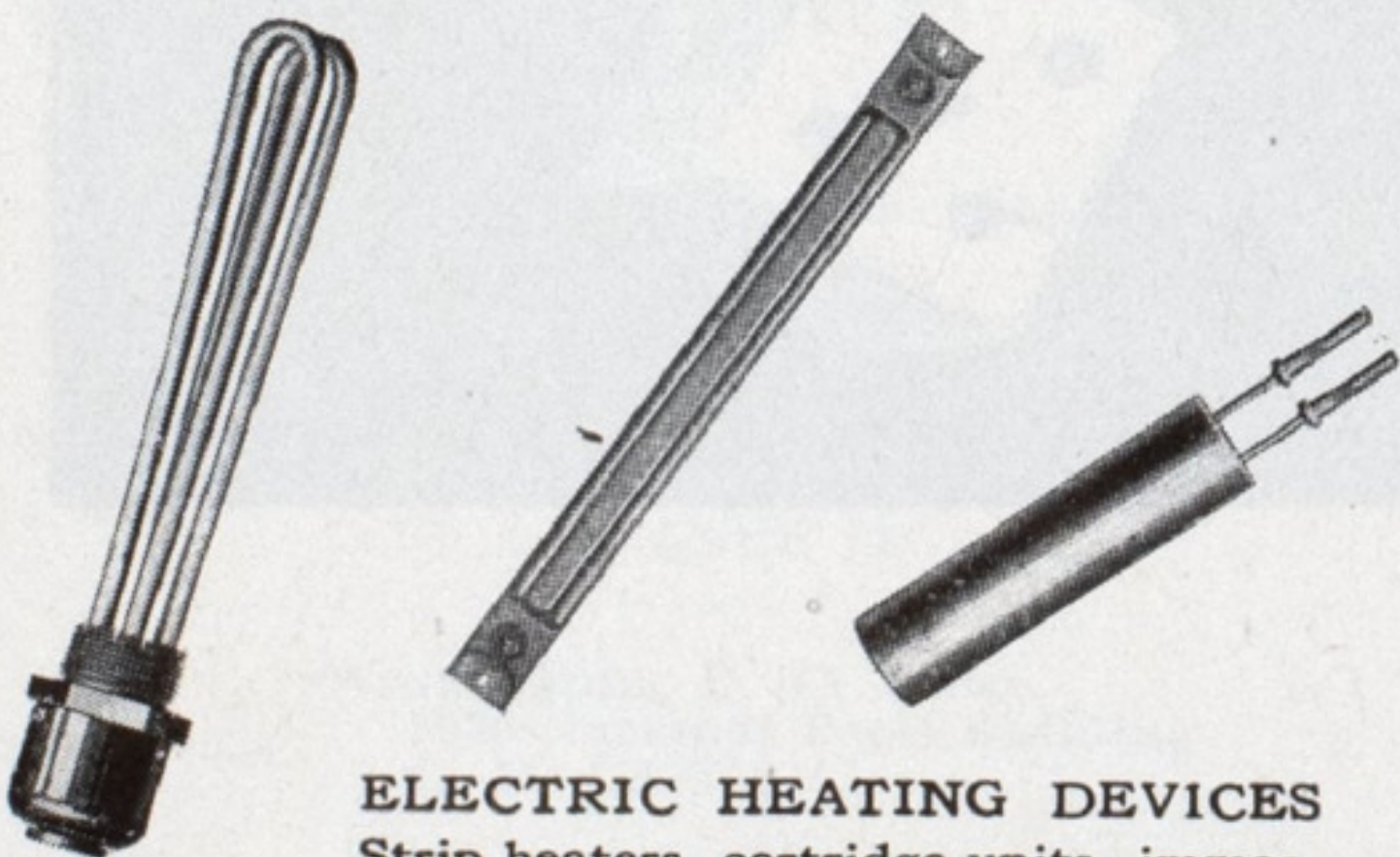
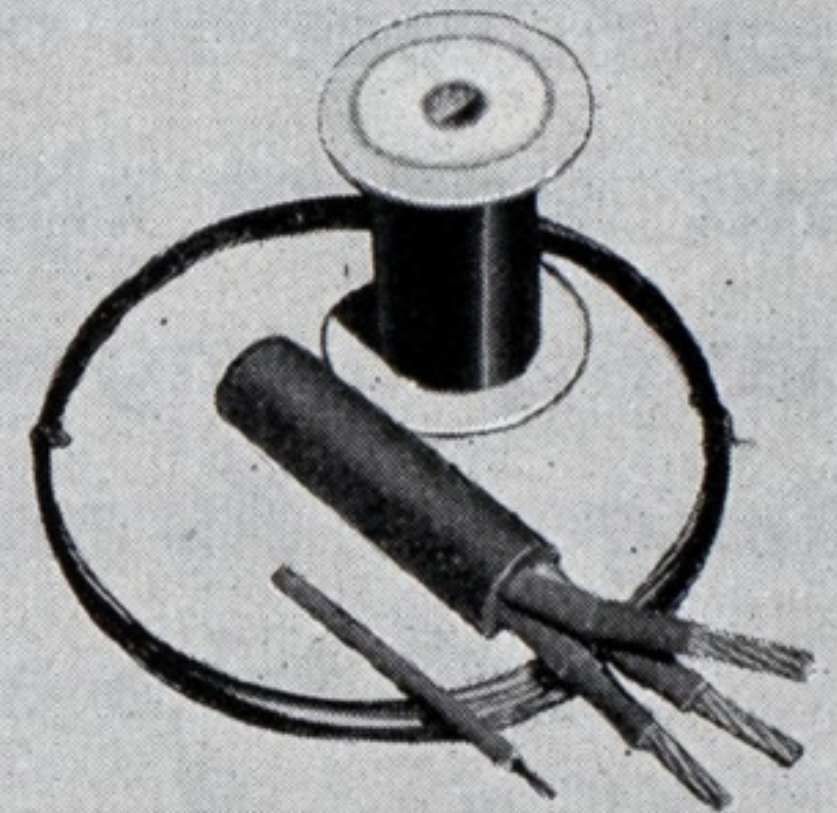


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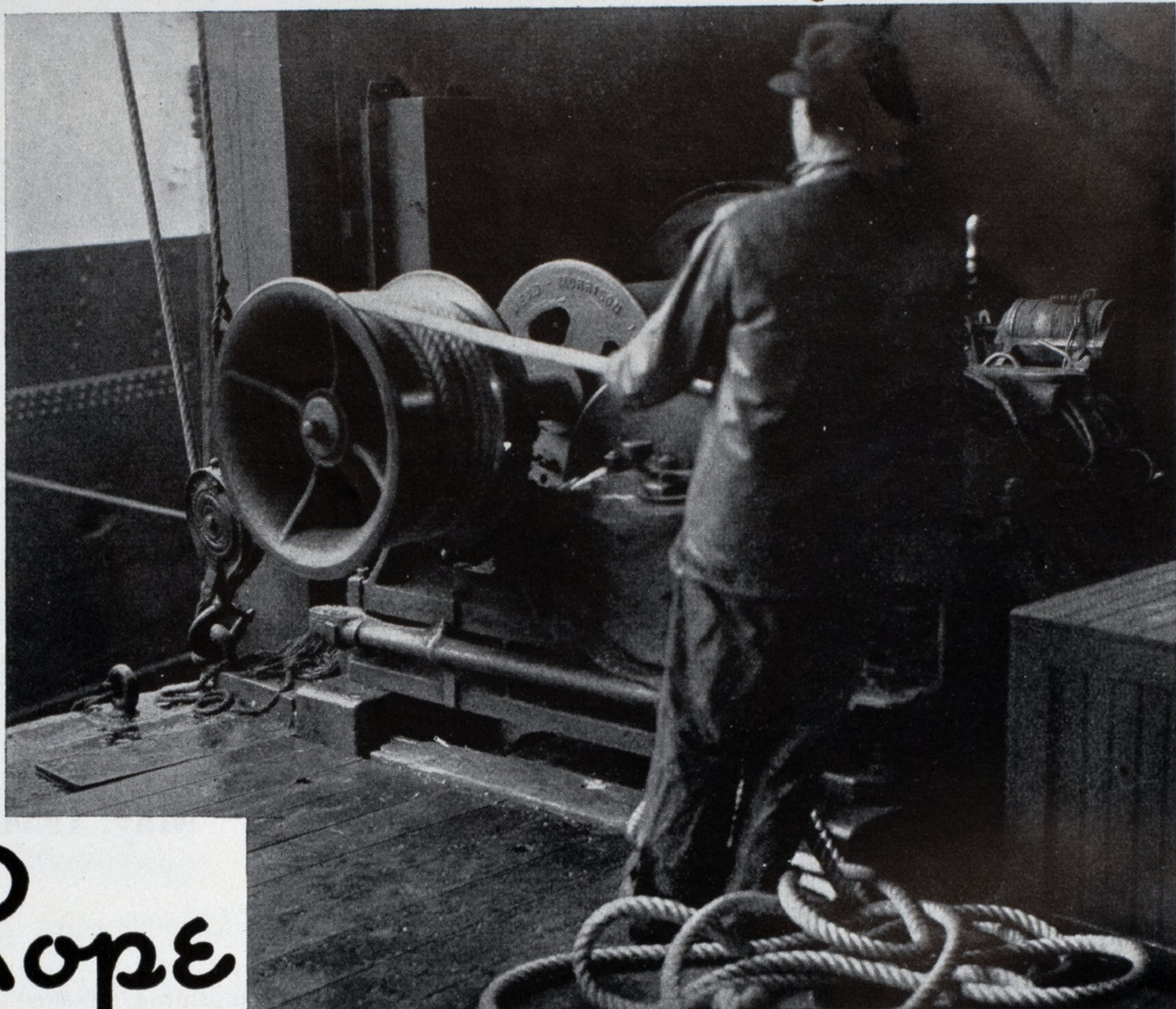


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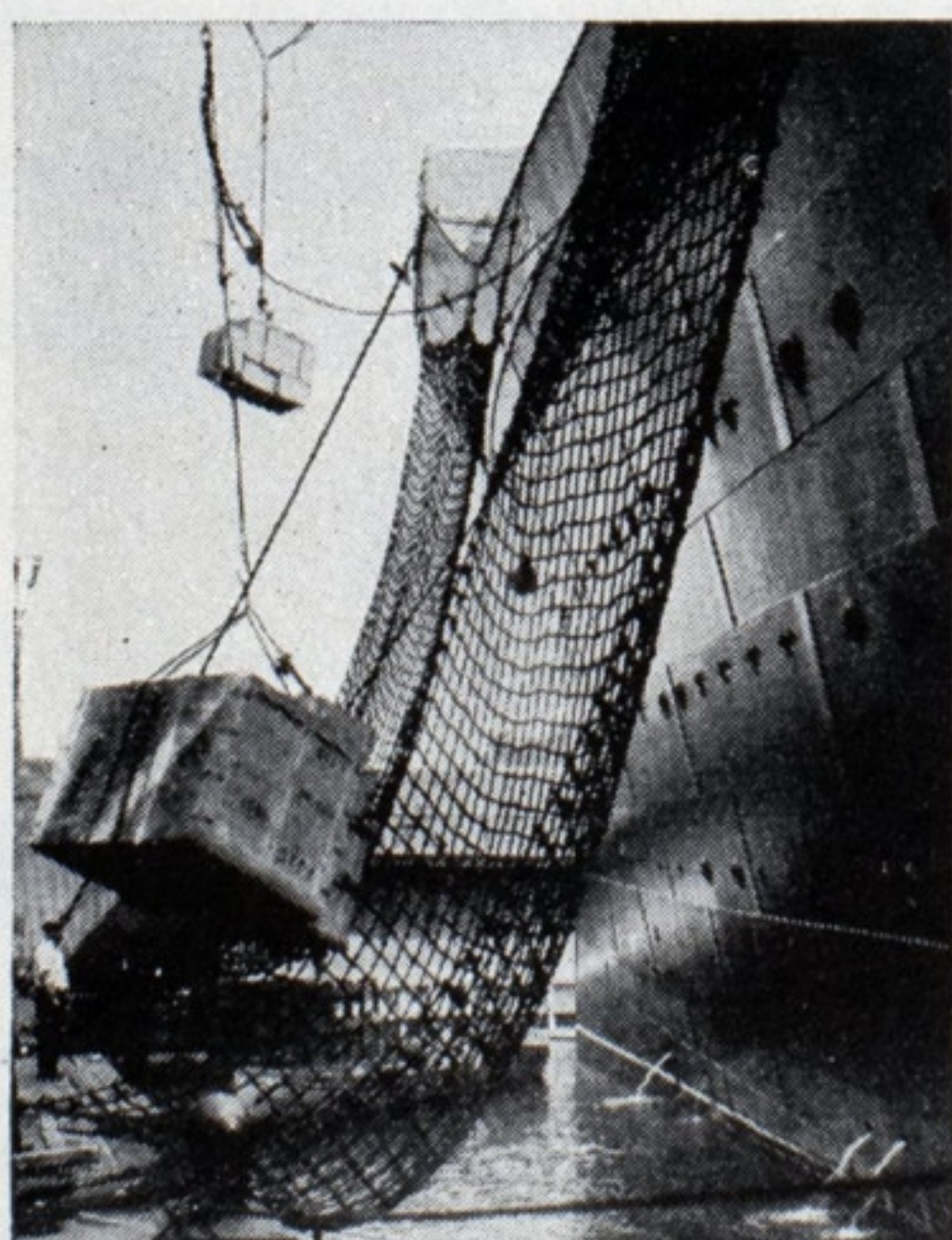


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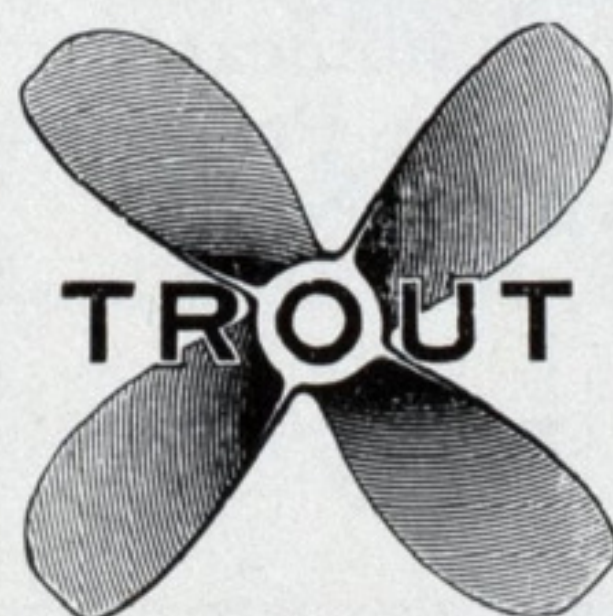
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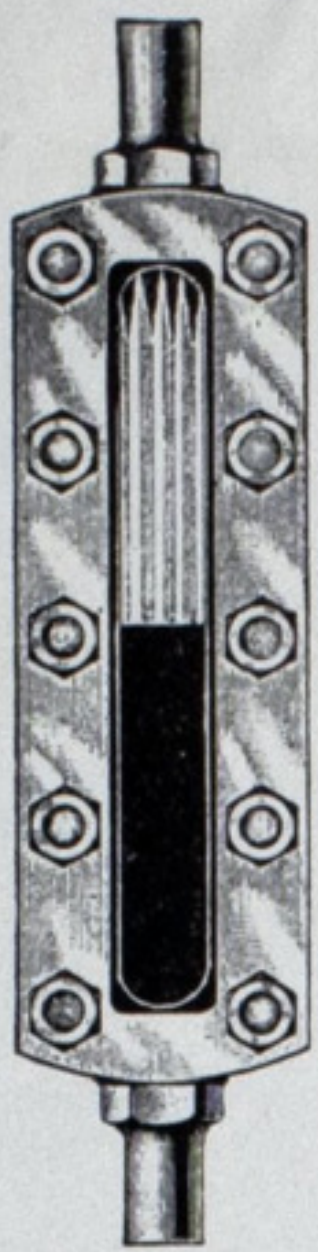
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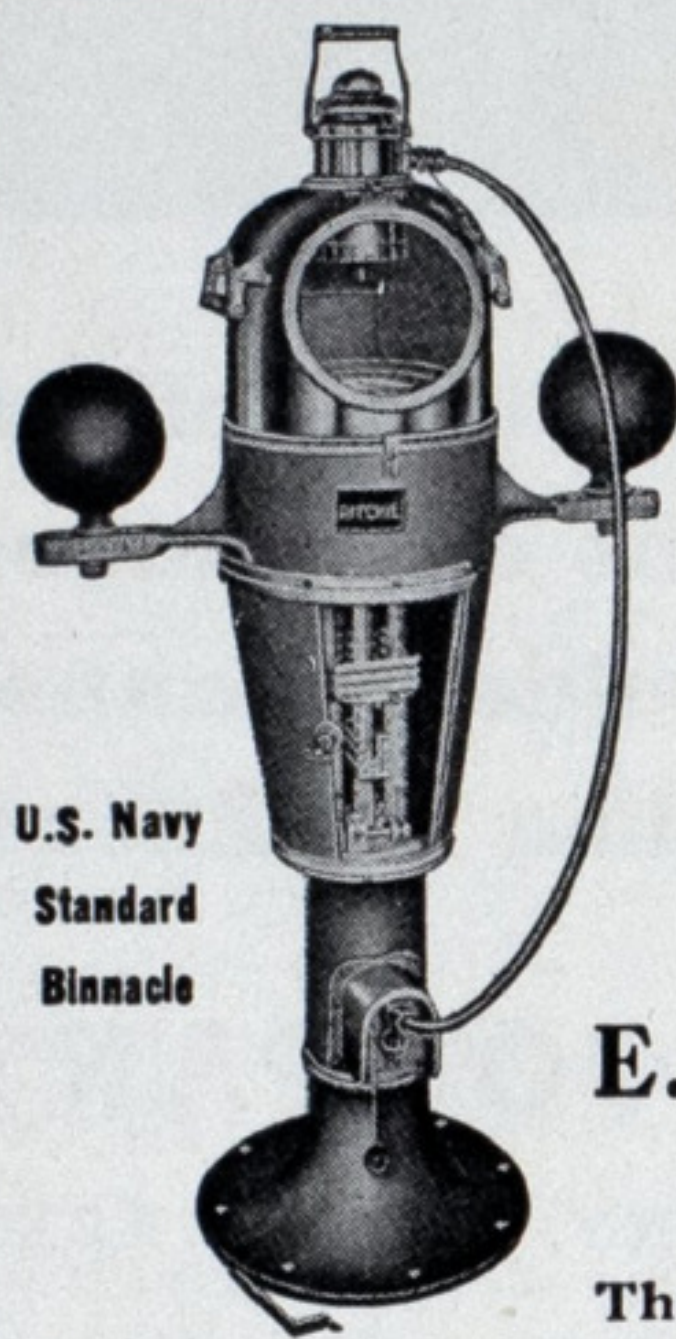
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## INDEX TO ADVERTISERS

American Shipbuilding Co. .... Inside Front Cover

Boland & Cornelius ..... 41

Federal Shipbuilding & Dry Dock Co. .... 41

General Electric Co. .... 3

Hamburg-American Lines ..... 42

Jerguson Gage & Vale Co. .... 42

New York Shipbuilding Corp. .... 4

Plymouth Cordage Co. .... 6

Reading, E. H. .... 41

Ritchie, E. S. & Sons ..... 42

Riverside & Fort Lee Ferry Co. .... 42

Sun Shipbuilding & Dry Dock Co. .... Back Cover

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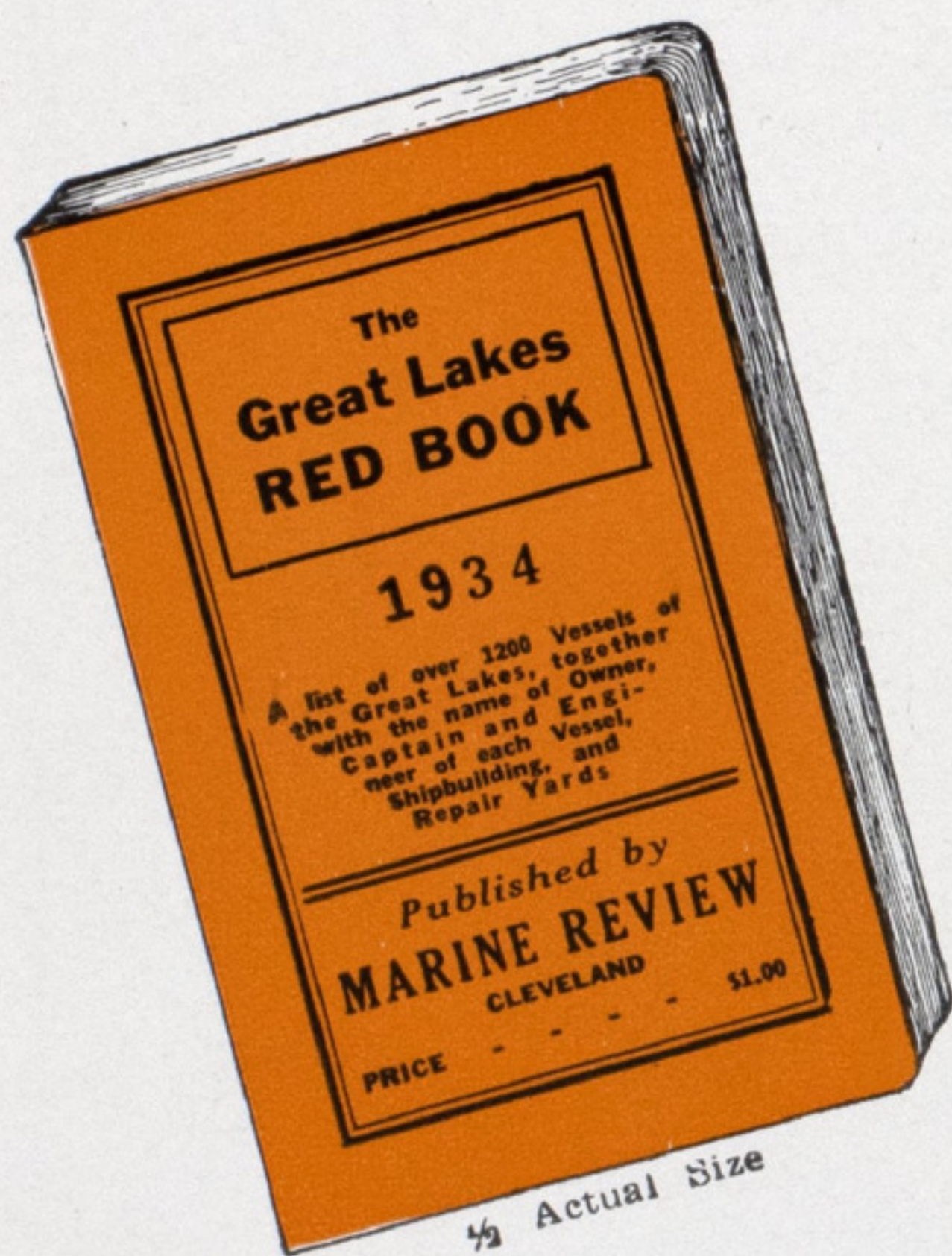


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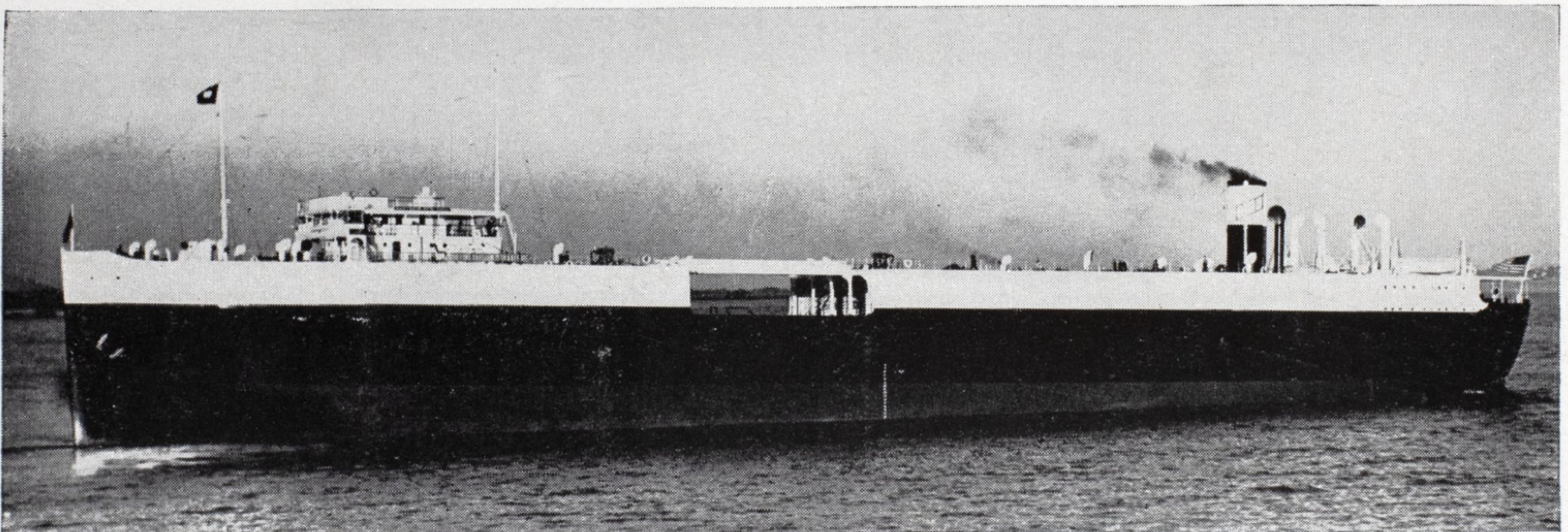
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